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ON THREE CASES OF PERFORATING TYPHOID ULCER SUCCESSFULLY OPERATED ON.*

BY

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Not very long ago, when a case of perforation of a typhoid ulcer occurred, it was looked upon as hopeless. With the general advance of abdominal surgery attempts were made to close the ulcer by operation. It was thought by many, however, that such attempts were liable to prove futile, because of the usual condition of collapse of the patient in such cases, and the little reparative power which existed, owing to the violence of the disease. It was argued that the operation by itself was a serious one, and with a severe fever superadded there was but little chance of a successful result. However, operations were still performed, and physicians soon recognized the fact that the earlier the operation took place, after perforation, the better; so the surgeon was called in as soon as the perforation could be definitely diagnosed. Now, from time to time, a successful case was reported, and, thus encouraged, more operations were undertaken, and at the earliest possible moment.

My colleagues at the Montreal General Hospital soon recognized that the surgeon should be called in as soon as possible after perforation, with the result that a fair percentage of recoveries was obtained. In some few cases a mistaken diagnosis was made and no perforation found, but no harm resulted to the patients. These mistakes are inevitable in early operations, but are much counterbalanced by the re-

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covery of not a few patients who have been submitted to the knife. If we wait until unmistakable signs of perforation exist, such as rigidity, distension, vomiting, etc.—in fact, signs of general peritonitis—then we will operate too late.

As to the technique, I have always made use of the lateral incision, and have usually found the perforation near the ileo-cæcal valve; by this incision the site of the perforation is more easily found than by the median incision, and with less disturbance to the parts and less moving about of the intestines, and consequently with much less chance of general infection of the peritoneal cavity. The ileo-cæcal junction can always be easily found, and from there the bowel followed until the perforation is reached. I have always closed the perforation by turning in the bowel and making use of a continuous Lembert suture, employing fine silk. Other ulcerations in the neighbourhood, which can be easily made out by the dark red colour and induration, are similarly treated in case they might also perforate, and so render ineffectual the successful closure of the first perforation. After closing the perforation the abdomen is irrigated thoroughly with warm normal saline solution, a rubber drain inserted down into the pelvis, and the wound closed either in layers or by through and through silk-worm gut sutures. There is always suppuration in these cases, and the wound shows but little disposition to heal, and usually there is a hernia as a result; but these are small disabilities in comparison with the saving of a life—the hernia can be kept in place by a suitable truss, or afterwards treated by operation if the patient so desires it.

In cases of operation for perforation of typhoid ulcers I have always employed general anæsthesia, and have seen no ill results follow. I know that many advocate local anæsthesia, but I have never felt satisfied with it, and, from the cases in which I have seen it used, believe that there is more shock than when general anæsthesia by means of ether is made use of. The important points, then, in these cases of perforation are—

1. Early operation, in fact as soon as it is positively known that perforation has taken place.

2. Rapid operation, and not too much time devoted to the so-called toilet of the peritoneum.

3. It is also important, at the time of operation, to see that there are no other ulcerations likely to perforate. I have seen the ulcer first treated heal perfectly, and the patient afterwards die from a second perforation. It is very simple to turn in the bowel opposite where the ulcers are showing, and where the congestion and colouring of the peritoneal surface indicate probable approaching perforation. I am

sure, if early operations were undertaken in every case of perforation, the deaths from this cause would be much reduced.

Case 1.—Mrs. T., æt. 30, on 2nd October, 1900, was sent into hospital, by Dr. Ridley Mackenzie, for operation for perforating typhoid ulcer. She stated on admission that she had not been feeling well for two weeks, but had been doing her housework until the previous day. At two o'clock in the morning of the day of admission she was seized with a very sudden pain in the abdomen, accompanied by vomiting. After a few hours she was seen by Dr. Mackenzie, who made a very careful examination, and diagnosed ambulatory typhoid with perforation from ulcer. At that time Dr. Mackenzie says the patient was not in a condition of collapse. He persuaded her to enter the Montreal General Hospital, where she was placed under my care, and immediately prepared for operation. On admission her temperature was 104.6°; pulse, 136; respiration, 28. The abdomen was rigid, tender, but not much distended; the tenderness was more marked on the right side. Liver dulness was not obliterated. Blood test gave typhoid reaction; rose spots seen on the abdomen.

Operation.—Commenced at 1 p.m. on 2nd October, about eleven hours after the supposed perforation. An oblique incision was made in the right side of the abdomen, as for appendicitis, and all the layers of the abdominal wall incised in the same line. On opening the peritoneum, a large amount of yellow sero-pus, mixed with large flakes of lymph, escaped. The cæcum appeared in the incision, and looked normal; the ileum was now searched for and easily found; it was much congested, and in places covered with a thin layer of very adherent lymph. About 8 in. from the ileo-cæcal valve the perforation was found, opposite the mesenteric attachment. The perforation was a small one with sloughy yellowish edges, and was in the centre of a dark red induration of the bowel which represented the ulcer and accompanying infiltration; this infiltration was about a centimetre in diameter. The whole mass was turned in and closed with a continuous Lembert fine silk suture in the long axis of the bowel. At the lower end, to make it more secure, a few interrupted sutures were placed in addition to the continuous one. The peritoneal cavity was then flooded with a large quantity of warm normal saline solution by means of a rubber tube introduced at the bottom of the pelvis; before this was done, the pelvis, which was full of sero-pus, was swabbed out with aseptic gauze pads. After a very complete irrigation had been performed, and the fluid returned quite clear, a large glass drain, reaching down to the pelvic cavity, was placed in the wound, which was then closed, each layer of the abdominal parietes being separately sutured with catgut, except

the skin, which was closed with silk-worm gut; gauze and sterile absorbent cotton-wool dressing was then applied, and kept in place with adhesive plasters.

As is usual in these cases the wound did not heal readily, but pus appeared on the third day, and the wound partly reopened. The tube was removed on the second day and replaced by aseptic gauze packing. The bowels moved well the next day by means of a turpentine and soap suds enema. The fever continued high, 102° to 104° F., for over a week, and then gradually fell to normal on the fourteenth day after operation. The wound closed by granulation, and the patient was discharged on the 31st October. I have seen this patient since, and she is quite well, though at site of wound is a slight hernia, which she refuses to have treated surgically.

Dr. Mackenzie tells me that he had seen the patient several times before the perforation took place, and had diagnosed typhoid, but could never induce her to go to bed.

Case 2.—Miss H. C., æt. 28, was admitted into the Montreal General Hospital as a private patient, with typhoid fever, under Dr. G. Gordon Campbell, 15th May, 1901. At the time of admission she had severe headache and also splenic enlargement; temperature, 104.4°; pulse, 92; respiration, 20. Dr. Campbell thought it was about the eighth day of the fever. Two days after admission rose spots appeared, and the blood gave a distinct typhoid reaction. The course of the fever was uneventful until the nineteenth day of the illness, when, at 10 p.m., she had a sudden acute pain in the abdomen, with great tenderness to the right of the median line, and vomiting. Through the night there was some increased resistance of muscles, and the pain kept up, but in the morning was not so severe; there was, however, increased tenderness and intense rigidity of the muscles.

A leucocyte count showed 3400 white cells. Temperature, 105°; pulse, 88; respiration, 20. It being evident that perforation had taken place, she was transmitted to my care for operation; this was performed at 1 p.m., fifteen hours after the perforation.

The procedure was the same as in Case 1; a lateral incision was made, and the perforation found within 4 in. of the ileo-cæcal valve; the perforated portion was turned in, in the longitudinal axis of the bowel and closed with a continuous Lembert suture. The abdomen was washed out freely with normal saline solution, the wound closed in layers, and a drainage-tube introduced into the pelvis.

Her condition after the operation was good, the discharge from the wound was free for some time, and there was considerable pus. The wound healed slowly by granulation, but without any serious complica-

tion. After the operation the temperature fell to 102°, and the range for the next week was from 103° to 103.8°. During the fourth week of the fever the temperature was between 101.2° and 100°, and the pulse 70 to 80. On the thirty-fifth day she developed a phlebitis of the left femoral vein, which gradually disappeared under treatment. She was discharged, with the wound healed, on 21st June, 1901. I have seen her within a few weeks, and she is in perfect health, but has a fairly large hernia at the site of the operation wound, which is easily controlled by a truss.

It is of interest in this case, that, although perforation had taken place, there was no leucocytosis.

Case 3.—Michael McI., æt. 30, was admitted into the Montreal General Hospital, under Dr. Ridley Mackenzie, suffering from typhoid fever. As far as could be made out, he was in the third week of the disease, which was of a fairly severe type. On 24th July, 1901, three days after his admission, at 3 p.m., he was seized with a severe pain in the right iliac fossa; temperature, 102°; pulse, 150. When seen an hour after, there was obliteration of liver dulness and marked leucocytosis. Within two hours of the perforation, he was seen by me and immediately operated upon.

The usual incision was made, and some thin sero-pus escaped on opening the peritoneum. The perforation was easily found about 1 in. from the ileo-cæcal valve, and was quite small. The opening was easily and rapidly closed by inverting the peritoneal surface, and using a continuous Lembert suture. The pelvis was washed out with warm saline solution and the wound closed, a drainage-tube being left at the lower end, which reached the pelvis.

The patient did well for a week and then began to have high temperature, 103° to 104°; this was apparently due to the fever and not to the wound. The tube was removed in three days, and gauze substituted. The wound did not heal very kindly, but discharged considerable pus and healed mostly by granulation. His temperature was not normal until the 28th of August, and he was not discharged until the middle of September. I have seen him quite recently (July, 1902), and he is in perfect health. He came to consult me about a hernia which existed at the site of the wound, and preferred a truss to operation.

SARCOMA OF SHOULDER JOINT—AMPUTATION OF UPPER EXTREMITY.

BY

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P. M., female, aged 19 years. On January 2nd, 1902, this patient was admitted to the surgical side in the Montreal General Hospital, from the service of Dr. Ridley McKenzie, to whom I am indebted for the case, and for advice and supervision of the medical condition while the patient was in my ward.

The patient was born in England. As a young child she was healthy. At the age of 13 years she had an attack of sickness which kept her in bed for a week or two. Some months later she was admitted to an hospital in England, suffering from what might be considered "chorea." At intervals since she has had attacks of articular rheumatism.

In 1900, while a patient in the Montreal General Hospital, she had a severe and prolonged attack, during which she developed a suppurative axillary adenitis; this was opened, drained, and was soon well. It was considered to be of tubercular origin.

In October of the same year while suffering from pain and swelling of the left shoulder joint, she fell against a piece of furniture. This was followed by increased pain in the joint with numbness and tingling in the fingers. She was admitted to another hospital in this city, where she remained about six weeks. Under rest and hot fomentations the numbness and tingling passed away, but the pain and swelling in the joint remained.

On admission the patient weighed one hundred and five pounds; was of medium height and of good nutrition.

The condition was grave. She was suffering from cardiac hypertrophy and extensive valvular disease; her extremities were slightly cyanosed; pulse and temperature normal. She was unable to walk with any degree of comfort. The lymphatics were markedly enlarged in the right cervical and sub-maxillary regions, and palpable in both inguinal regions.

On examination of the left shoulder it was found to be uniformly enlarged, the skin over it was somewhat tense, through which superficial veins were plainly seen. No axillary glandular involvement was

made out. There was constant pain in the joint, especially severe at night and when the arm was manipulated. There was pseudo-fluctuation, and only after several examinations egg-shell crackling was faintly made out.

The patient was unwilling to try to move the arm, but passive movement carefully done showed that the joint was still movable, and that rotation was followed by change in position of the enlargement; no crepitus; no œdema of the arm; no apparent difference in the volume of the radial arteries; motor and sensory nerve supply normal. The coracoid process was not readily felt; the other bony prominences about joint were normal.

While under observation the pain in the joint increased so much at night that morphia had to be administered.

The diagnosis of sarcoma of the head of the humerus was confirmed by a radiograph.

It was very difficult to determine what advice should be given to this patient. On the one hand there was the recurring rheumatic condition with marked cardiac disease and occasional loss of compensation; on the other, advanced malignant growth of one of the large joints. Again, granting that the patient could survive a serious operation, how radical should it be? I considered one had to choose between amputation at the shoulder joint, or removal of the upper extremity. Each of these operations is not without danger when done in a patient of good physique, but in the present case the unsatisfactory general condition offered little or no hope for a successful result.

Although the clinical appearances pointed to a myeloid sarcoma, it seemed reasonable to assume that the soft tissues of the joint had become invaded, and that the more extensive operation must be chosen. I, accordingly, placed the situation before the patient, recommending the latter, and she declined to take the risk.

Increasing pain in the joint caused her to change her mind; she consented, primarily to relieve pain, and secondly in the hope that the disease would be eradicated.

Amputation of the upper extremity after the method suggested by Paul Berger was decided upon and carried out on January 16th, 1902. Briefly it is as follows:—

The anterior incision, commencing over the inner border of the clavicle is carried out to the acromio-clavicular articulation, and then obliquely over the tendons of the pectoral muscles into the axilla and down to the lower angle of the scapula. The posterior incision com-

mencing at the acromio-clavicular articulation passes backwards over and internal to the shoulder joint, and perpendicularly along the border of the scapula to meet the anterior incision. The next step is to excise the middle third of the clavicle, thus exposing the axillary vessels which are at once tied, and the tendons of the pectoral muscles are then cut and reflected, exposing the brachial plexus which is cut high up; the scapula is then separated from the body, the muscles being cut lose to the scapular border.

The advantage of the operation is that it is almost a bloodless one, the only bleeding to be feared coming from a few scapular vessels. In the case under discussion, several large veins from the neighbourhood of the new growth had to be dealt with.

The flaps should come together without any irregularity; in this case however, owing to fear that the skin in front of the joint had been invaded, I was obliged to depart somewhat, thus accounting for the irregularity of the incision, which is plainly seen. Ether was administered and was well borne.

The convalescence was without incident, and in about ten days after the operation the patient was walking about the ward. Her general condition was much improved and the relief from pain complete. She was discharged February 25th.

September 2nd, cervical adenitis still present. No evidence of return of the disease, although there has recently been some pain in the neighbourhood, due possibly to the stretching of the scar by the weight of a large mammary gland.

I am indebted to Dr. John McCrae, Resident Pathologist, for the Pathological Report.

The tumour is large, subcircular, roughly 8-10 cm. in diameter, and involves the upper two inches of the humerus, of which it entirely replaces the head and shaft. On section, the humerus is seen to lose itself in the tumour, the medulla of the healthy bone shading almost imperceptibly into the tumour mass. Its origin in all probability is from the bone marrow of this part of the humerus. The crepitant egg-shell crackling can be felt, and parts of the original bone can be felt towards the periphery of the tumour. Extending upwards, the tumour has encroached upon the scapula, though no erosion of that bone is seen.

The glenoid cavity is to be made out, and the articular membrane of the humerus lies directly upon the tumour mass, instead of upon the head of the humerus.

The brachial vessels and nerves have been pushed downwards and inwards, and are displaced by, but not involved in, the tumour.

FIG. I. Condition before Operation.

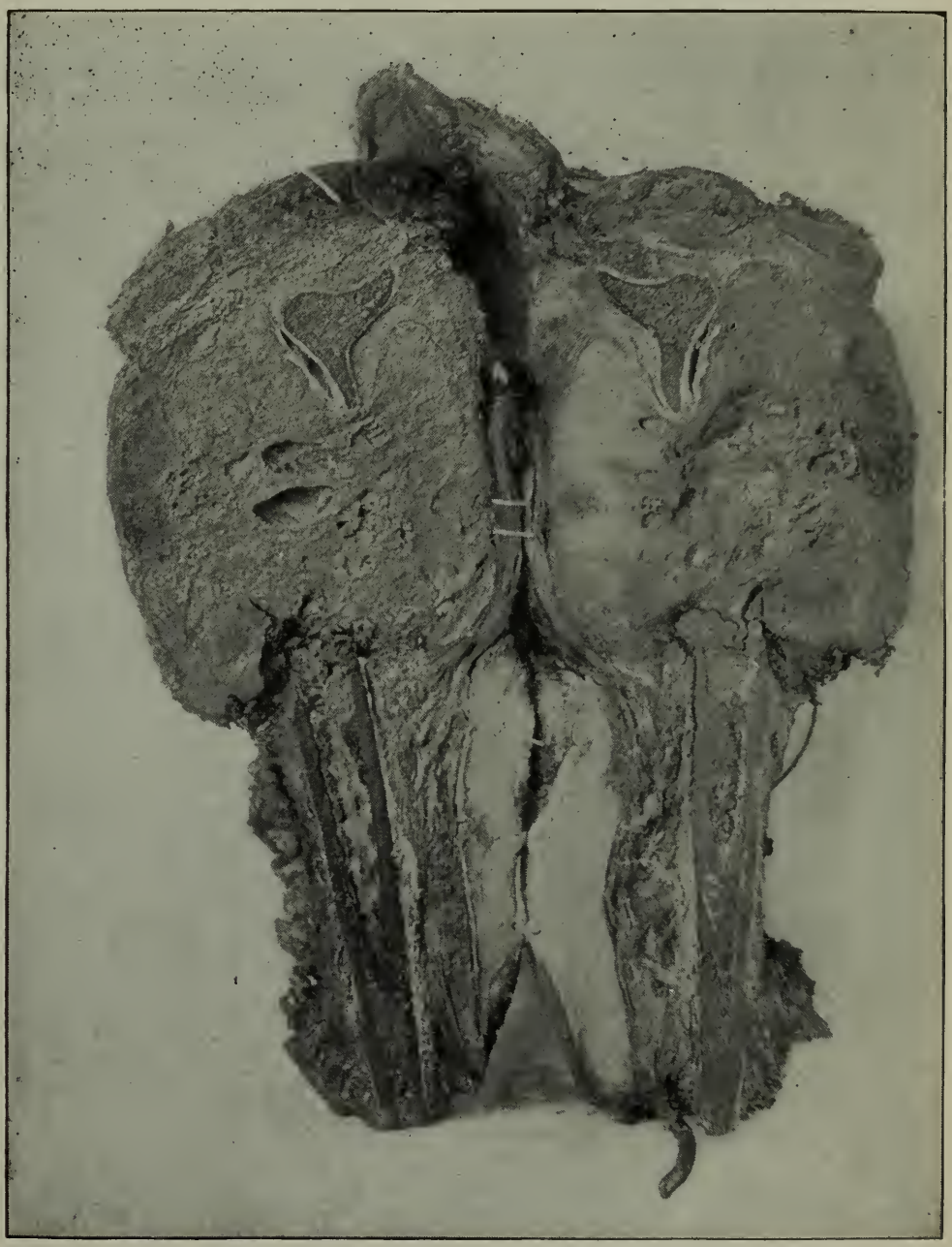

FIG. II. VIEW OF TUMOUR ON SECTION. *From a photograph by Dr. Patrick.*

FIG. III. SKIAGRAPH.

The tumour runs along the dorsal scapular surface 4 cm. from the glenoid fossa, but has not attacked the supra-spinous fossa at all. The infra-spinous fossa is involved for 2.5 cm. from the glenoid fossa. The tumour is not encapsulated, nor are its edges very distinctly defined.

Microscopically:—The tumour is a mixed round and spindle-celled myeloid sarcoma, with many giant (myeloid) cells.

The Radiograph was taken by W. P. Watson (Fig iii) the official radiographer of the hospital, who has kindly added the following particulars of the apparatus and methods used:—

Maurice E. Leeds coil with sparking capacity of eight inches and extra large condensor, Motor generator, a Queen self-regulating tube, Stanley dry plate, Methol hydroquinone developer, Exposure of three minutes.

Prognosis:—It is too soon yet to express an opinion as to the eradication of the disease. The patient's improved condition, the thorough removal of all neighbouring tissues, including the entire removal of the joint, taken in conjunction with the pathological report gives one hope for a permanent result.

NOTES ON A CASE OF NEUROPATHIC ARTHROPATHY.

BY

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Neuropathic arthropathies cannot be classed among the common joint diseases, and I think such a condition developing in the shoulder, in a patient who is not suffering from locomotor ataxia, is certainly worthy of being reported to this Society.

S.C., female, aged 32, was sent to the Royal Victoria Hospital by Dr. Shirres for surgical treatment, for a condition which she described as "cramping of and an inability to use her legs." She had worked in a factory as a machine-hand, from 15 until she was 19 years old, at which date she was married. Up to this age she had enjoyed good health, but on the day of her wedding, pain in the small of the back was complained of, and continued more or less severe for the following five months. This pain was soon followed by a girdle sensation; twitching in the limbs, particularly the left; dragging of the feet in walking; and attacks of involuntary contractions of the legs, chiefly in adduction; tingling in feet and toes; associated with incontinence of urine and fæces.

At first she remained in bed for three weeks, receiving electrical treatment. The bladder function has improved, though at present she suffers somewhat from incontinence of urine.

At first she was able to walk in a fashion, by supporting herself between two chairs, but latterly has been during the day confined more or less to a wheel-chair.

She has borne two children; the first died in infancy from diarrhœa, the second is alive and well.

At sixteen she suffered from a skin disease on the lower limbs, which has resulted in extensive scarring, and which she says necessitated scraping of the bone. Shortly after her marriage a similar condition attacked the face and side of the neck, which has also resulted in extensive scarring.

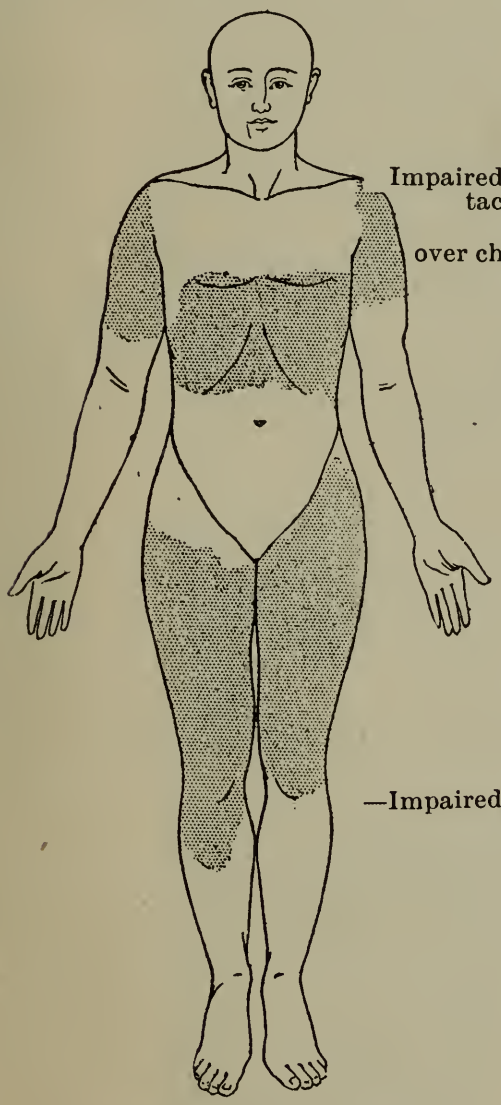
No venereal nor tuberculous history can be established.

Patient at present is well nourished, rather pale, lies on the left side, with flexed and adducted lower limbs. She is unable to walk, and can assume a sitting position in bed with difficulty owing to spasm of the lower limbs on attempting to move.

Marked increase of deep reflexes. Babinski's toe phenomenon is well shown.

Pain is complained of in the lumbar and hypogastric regions. Painful sensations are felt but much delayed. She is unable to distinguish heat from cold.

The accompanying diagram shows the area of disturbed sensation. Such, in brief, are the chief points in the history of the case, which has been diagnosed as a case of transverse myelitis.


Impaired to heat and cold, but not to pain nor tactile sensations.
over chest impaired to pain.
—Impaired to pain and tactile sense.

A few days after admission she complained one afternoon to the nurse that her left shoulder felt heavy, and that she thought it was due to a bandage retaining a dressing on a small abrasion of her left elbow.

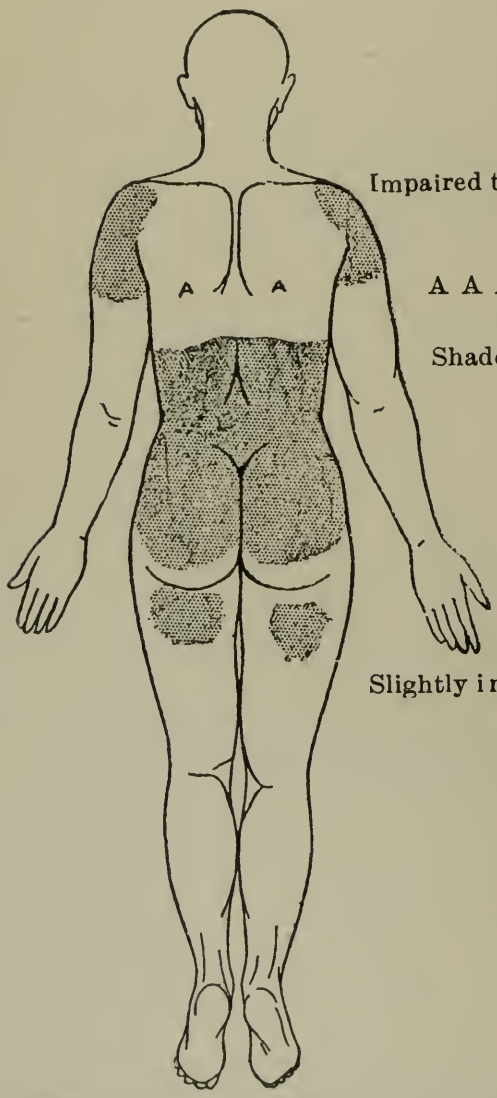
The house surgeon examined it, and found about the same condition which I saw the following forenoon at my regular visit.

The shoulder and arm were very much swollen and distinctly hotter than the forearm.

The swelling of the shoulder was spherical and tense, the bulging

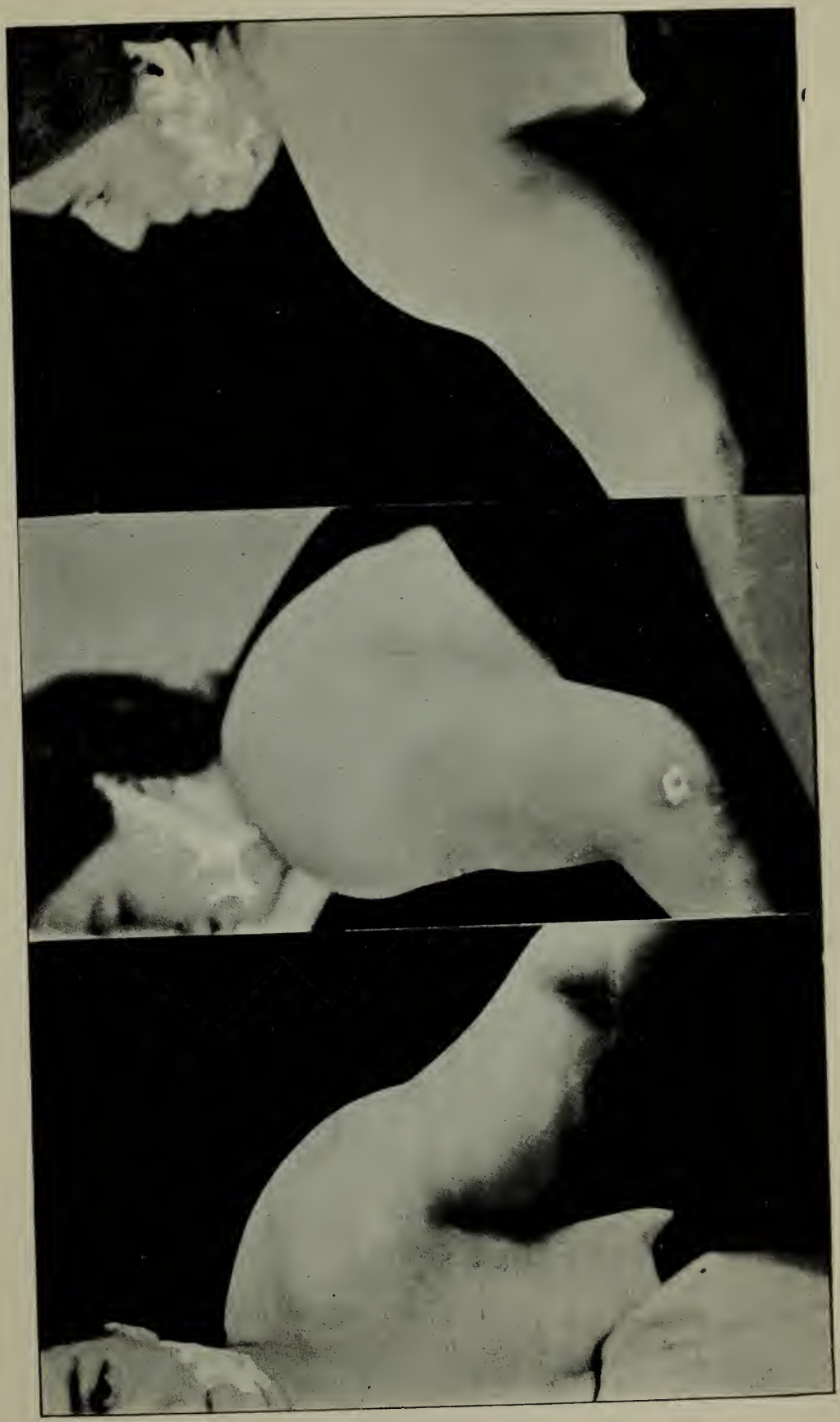
being especially marked beneath the outer extremity of the pectoralis major, but less marked behind. Considerable pressure was necessary to palpate the edge of the acromion. The skin over the outer aspect was white, shiny and covered with dilated veins; it was not thickened, and this was in marked contrast to the skin about the lower border of the pectoralis major and along the inner side of the arm, which was brawny and of a dull red colour, showing a pitted appearance such as one sees in lymphatic œdema, and pitting with difficulty on pressure.

There is absolutely no pain either on active or passive motion. The


Impaired to heat and cold.
A A
A A Area above shaded portion represents parts over which tactile sensation is impaired.
Shaded area represents area over which painful sensations are diminished.
Slightly impaired to pain and tactile sense.

restricted movement is evidently due to the tension of the joint and the infiltrated tissues; there is not any evidence of muscular spasm.

Measurements:—	*Right.*	*Left.*
Over Acromion and Axilla	35 c.m.	48½ c.m.
Below Axilla.	28 c.m.	39 c.m.
Above Condyles.	22 c.m.	30½ c.m.



The accompanying sketches show the appearance on examination.

This condition did not vary for about three or four days. About this time, however, less tension was noted and crepitation could be readily elicited, but no loose pieces of bone could be felt.

The tension is steadily becoming less, and the infiltration is being absorbed, so that the impression one now gets is that of a subluxation of the shoulder.

The treatment employed, consisted in applying hot fomentations of lead and opium and fixing the joint by means of an internal lateral splint. It seems to me, however, that aspiration of the joint early, with fixation, might prove beneficial in helping to maintain the integrity of the capsule and thus lessen the deformity and possibly the anchylosis in cases which show a tendency to more or less perfect recovery.

SOME UNUSUAL FORMS OF OCULAR TRAUMATISM.*

BY

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During the past eighteen months some rather unusual forms of ocular traumata came under my observation in my clinic at the Montreal General Hospital, from among which I have culled the following cases as being of special interest.

Fracture of the Roof of the Orbit with Evulsion of the Eyeball.

W. B., aged 35, a large, powerful labouring man, while working on a pile of lumber fell from it to the ground, a distance of twelve feet. In his fall he struck an iron crowbar which was standing upright in the ground, the point of the bar entering his left orbit. He did not lose consciousness, but staggered to his feet and walked to the cab which brought him to the hospital. There was but little bleeding at the time.

I saw him two hours later and found the lids and soft orbital tissues a mangled mass, the eyeball was unruptured, but dislocated in such a manner that the upper posterior surface presented outside the torn eyelids, through which the eye had been forced, the cornea being directed towards the floor of the orbit. The upper bony margin of the orbit gave distinct crepitus on palpation. There were two vertical lacerated tears in the upper eyelid and one in the lower. Pulse 70, low tension; temperature 97.2° F.; intellect clear.

I ordered cold applications for the night. The patient next morning showed marked signs of drowsiness, which was gradually increasing, the pulse being under sixty, but there was no decided headache or pain. Fearing intra-ocular oozing and also the difficulty of controlling a possible sharp hæmorrhage while clearing out the mutilated orbital contents, I had a consultation with Dr. Armstrong, who agreed with me as to the advisability of ligaturing the left common carotid, which he kindly did. I then cleared out the orbital contents, finding the optic nerve ruptured and the roof of the orbit broken into a number of pieces which I had to remove, two being as large as a finger nail. The fractures extended backwards and inwards about two inches, involving the nasal, frontal, sphenoid and ethmoid bones. There was also a

* Read before the Canadian Medical Association, Montreal, Sept. 18, 1901.

depressed fracture of the floor of the orbit towards the outer angle, the lower margin of the orbit not being involved. The orbit was now thoroughly cleansed, pure carbolic acid swabbed over, followed by alcohol, and then finally dressed with friar's balsam and gauze.

The patient made a rapid and uneventful recovery, leaving the hospital in three weeks.

The crowbar had evidently entered the orbit above the eyeball, tearing the lids and dislocating the eye downwards and forwards. It is remarkable how the eyeball escaped rupture and how the crowbar escaped penetrating the cranial cavity. The depressed fracture of the floor must have been caused by indirect pressure. The diameter of the bar was $1\frac{1}{4}$ inches. The case is very interesting on account of the severity of the injury and the rapid recovery.

Entrance of a Piece of Steel into the Vitreous Chamber of the Eye; Removal by an Electromagnet with Retention of Useful Vision.

C. W., aged 20, came to me with a history of being struck two hours previously in the left eyeball by a small piece of steel, which had entered the eyeball. He had severe pain and nearly complete obliteration of vision, merely light perception remaining.

On examining the eye I found that the piece of steel had entered it through the cornea about a millimeter or two from its outer edge in the horizontal meridian. It had then penetrated the iris, a small opening being plainly visible, and escaping the lens, had evidently lodged in the posterior chamber. The pupil was irregularly dilated, approximately a horizontal oval. With the opthalmoscope no details of the fundus could be made out, the posterior chamber being filled with blood.

Feeling confident the steel was in the eye I had the patient anæsthetized and then made a meridianal incision through the coats of the eyeball between the insertion of the external and inferior rectus tendons about seven millimeters from the cornea. Through this wound I inserted the tip of the electro-magnet (Snell's), and on the third attempt withdrew the piece of steel. The piece was a quarter of an inch long and irregular in shape.

Under antiseptic lotions, cold applications, and rest in bed, the wound rapidly healed. Three months later vision was one-third of the normal, but there was a scotoma in the inner part of the field of vision corresponding to the scar left by the incision. The opthalmoscope revealed fundus details, some large lymph specks floating in the vitreous, and a white scar to the outer side where I had made the incision.

Impaction of a small piece of Steel in the Right Cornea, penetrating all its layers and projecting into the exterior chamber removed by the Electro-magnet.

C. F., a boy of fifteen, was struck in the right eye by a small morsel of steel. Four hours after the injury, on examining his eye, I found a small grey spot in the centre of the cornea. The spot was about the size of a small pin's head, and projecting through the centre of this spot into the aqueous humour I could distinguish a small splinter of steel. This could not be removed from the outside by the ordinary methods, as the slightest manipulation of it with a spud or needle would infallibly force it into the anterior chamber. I accordingly had the boy anæsthetized and then passed a broad bent knife into the anterior chamber from the side, so that its flat surface would be behind the piece of steel to support it and prevent it falling into the anterior chamber. Holding the blade in this position, I with a needle gently loosened the steel, and then applying the magnet withdrew it. Healing was rapid and normal vision was retained.

Cataract following Electric Shock from a Live Wire.

W. C., a boy of thirteen, was struck over the left malar region by a live wire. He was senseless for an hour, the family physician being even obliged to keep up artificial respiration for a lengthy period. Vision at the time of the injury was perfectly good, but gradually began to fail, so that in the course of a few months useful vision was lost.

There is a large scar over the left malar prominence corresponding to the burn, but in no way complicating the eyelids. A pale bluish white cataract is present, but there is no other evident abnormality. Vision is reduced to perception of light, but the projection is rather uncertain in the lower part of the field, likely due to some retinal or choroidal exudation. The pupils react to light.

Cases of cataract due to a lightning stroke have been reported, and Hess reports cataract arising from the discharge of a Leyden jar.

The other eye in my patient is normal, and after strict enquiry I find that vision in the injured eye was certainly good before the accident.

TWO CASES OF CÆSAREAN HYSTERECTOMY.*

BY

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Mr. President and Gentlemen:—

I have the honor of bringing before you two cases of Cæsarean Section, followed by removal of the uterus:—*Cæsarean Hysterectomy.*

These two cases have been met in the service of the Royal Victoria Hospital during the past year, the one by Dr. Gardner, and the other by myself; to Dr. Gardner I am indebted for the privilege of here associating his case with my own.

I have brought these cases before you in the hope that they might furnish some points of general interest, and chiefly for two reasons:—(1) The two cases exemplify two ways in which uterine fibroids may prevent parturition, and (2), they illustrate yet again the ever-recurring fact in surgery, that a procedure which was yesterday regarded as desperate, is to-day recognized as little more than commonplace.

In the two cases pregnancy had begun and developed to the later months, in a uterus the site of large fibro-myomatous growths, which growths both prevented the delivery of the child per *vias naturales*, and demanded also the removal of the uterus. In both the operation was an emergency operation undertaken as speedily as possible, the patients being brought to hospital when already in labour with a dilated cervix uteri, and the fœtal membranes ruptured. In one case the patient, æt. 37, was at term, a second pregnancy, she having been delivered with forceps of a dead child four and a half years before; the tumor had been discovered to the patient for four years, it had grown steadily during that time and had endowed her with the usual train of symptoms, save the merciful one of sterility. In the other case the patient, æt. 32, was at the seventh month, a first pregnancy, she having been married and sterile for six years; she had enjoyed fair health until some three weeks before and was totally unaware of the existence of the tumor until the day of her admission to hospital.

In both instances the "fibroids" were multiple, but in the one uterus they were largely intramural and the menstrual loss while regular in its occurrence had become extremely profuse; in the other uterus the

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nodules were subperitoneal and the menstrual habit had undergone little change; recurrent attacks of pressure symptoms—pressure upon both bladder and bowel—as evidenced by difficult micturition, "bilious attacks," and obstinate constipation, being the only complaint.

As you will observe, the two cases in their clinical history are widely divergent in every respect.

The operations in the two cases were similar, viz.: Cæsarean Section, and so delivery of child and secundines, followed by removal of the uterus and its tumors by means of a supravaginal amputation. It is, of course, understood that the complete operation of Cæsarean Section is, in these cases, not performed, as the opening in the uterus is not in any way closed. The results in the two cases were, I am happy to say, identical in respect of a rapid and complete recovery of the mothers. The full-time child was a fine boy of nine and a half pounds, who has since been named by his proud and grateful mother after the surgeon, the professor of Gynæcology in McGill Unversity. On the other hand, the premature child was scarcely viable and it died on the fourth day.

As you all know the operation of Cæsarean Hysterectomy represents in its two parts one of the earliest and one of the latest operations in the history of surgery. The early operation is Cæsarean Section, the late one, Abdominal Hysterectomy, and included between these is the whole surgical story of the abdomen. For Cæsarean Section was performed before the time of the great Hippocrates, to rescue the child after the death of the mother, and it is said that we owe to this operation, so performed, the lives of the first Cæsar and our own Edward VI. Whether or no it is true that the first Cæsarean section upon a living woman, was accidental, a woman at term being gored by a bull and the child so delivered — the first authentic case wherein the operation was performed by a surgeon was in 1491 and in 1500 by Nufer, some four hundred years ago. Since that time the operation has been a definite surgical proceeding. It has undergone various modifications, chiefly in the hands of Porro, Simpson, Tait and Sänger, and though displaced at various times by such procedures as Craniotomy and Symphysiotomy, it remains to-day the operation of election in every case, where, the uterus and adnexa remaining healthy, delivery is rendered impossible by faults in the passages below.

Abdominal Hysterectomy, on the other hand is one of the later operations, it being first performed by Kimball of Boston, in 1855, barely fifty years ago, while the operation now known by this name has just reached its tenth year. The operation itself is a child of Ovariotomy, though born forty-six years after McDowell had opened his first abdomen. It owes its existence to repeated errors in diag-

nosis—a pediculated uterine fibroid being mistaken for an ovarian tumor. At first in such cases where the surgeon had operated for an ovarian tumor and had found a uterine fibroid, the fibroid was merely returned to the abdomen and the wound closed. But one day, so story has it, the fibroid refused to be returned, could not be got back into the abdomen, and so, perforce, the surgeon after tying the pedicle with strong cord, cut away the tumor. This was the first Myomectomy, and it seems a pity that the Fates have not preserved the name of that particular surgeon,— that reluctant and desperate pioneer.

The removal in this way of pediculated fibroids led by an easy stage to those cases where a pedicle could be secured only by taking the uterus as well, and we have the first Hysterectomy, performed as we have seen by Kimball for an interstitial fibroid. Kimball passed a ligature around the whole uterus at the level of the isthmus, and, after amputation, fixed the stump in the abdominal wound. This, at the time, was the invariable rule with all abdominal tumors,—the extra-peritoneal treatment of the pedicle or stump. Along the same lines followed now Koeberle, and in 1869 the great Péan with his clamp and serre-nœud. In 1876 Porro of Pavia, who died only last July, did his first Porro-Cæsarean operation, using the clamp and amputating the uterus in the then classic way. Hegar, in 1880, introduced his elastic ligature for the uterine stump, and some few years later, Olshausen, in order to prevent its premature escape, buried it in the tissue.

Wölfler, Van Hocker and Sänger, were the first to allow the uterine stump to fall back from the parietes into the abdomen, but they closely shut it off from the general peritoneal cavity, making it to communicate freely with the parietal wound. These "mixed methods" as they were called, soon gave place to the intra-peritoneal treatment of the stump, pure and simple, as practised first by Schroeder and Hoffmeir, and further perfected by the retro-peritoneal modification of Chrobak in 1891, and Baer in 1892. In this method, as you know, the vessels in the broad ligament are separately ligatured, no mass ligature being employed. The cervico-uterine stump is allowed to fall back to the floor of the pelvis and is covered by flaps of peritoneum, which have been previously separated, and the abdominal wound is completely closed. This operation has undergone various minor modifications during the last ten years and chiefly by Kelly of Baltimore; it is now commonly known as supra-vaginal amputation of the uterus, or in more restricted parlance, Kelly's side-to-side method.

And this is the operation that was performed in the above cases, Cæsarean Hysterectomy. The technique in both was practically the same. I had the privilege of assisting Dr. Gardner in his operation, and while the uterus was being incised and the child and placenta extracted, I practised digital compression of the vessels in the broad ligament. The uterine wall was uncommonly thick, and the edge of the placenta was struck in the bottom of the incision. The hæmorrhage for the moment was considerable, but a rapid evacuation of the uterus was followed immediately by strong uterine contractions and no further trouble was experienced. The broad ligaments were divided after sectional ligature, care being taken as usual to ligate cleanly and with separate ligatures the ovarian and uterine arteries. The ligature material was always cumolized catgut and no drainage was employed.

The case was a patient of Dr. J. J. Ross of this city, who had carefully watched her before her admission to hospital. She made a rapid and uneventful recovery and left hospital with her child at the end of five weeks.

In my own case the abdominal incision was made and the unemptied uterus delivered. In order to check, as much as possible, the hæmorrhage, I clamped temporarily the broad ligaments, for I had little hope of saving the seven months child. As it was impossible by palpation to detect the placental site I practiced Fritsch's fundal incision in the hope of escaping the placenta, for Hahn states that in only eight out of three hundred and eighty-two cases is the placenta planted upon the fundus. My own case must have been one of the eight, for I cut directly into the placenta, which had a fair fundal implantation. The hæmorrhage was profuse despite the clamps, and even after the emptying of the uterus the bleeding was troublesome and was only kept in check by firm manual compression upon the placental site. The large fibroid which lay in the pelvis was wedged therein, and was only drawn out by means of Doyen's *tiré-bouchon* (corkscrew), as a cork is drawn from a bottle. Fortunately, there were no adhesions.

As in the former case, the uterus with its tumors was removed after sectional ligature and division of the broad ligaments and a supra-vaginal amputation. The cervical stump was treated intraperitoneally and the abdominal wound closed without drainage.

This case was a patient brought in from Richmond by Drs. Moffatt and Tompkyns. They had been for the first time called to see her, and finding her in labor, with no hope of spontaneous delivery, the pelvis being blocked by a firm tumor mass, put her on board the first train, making her a bed on a mattress in the baggage car. On

her admission she had a capillary bronchitis with a temperature of 101.4, and a pulse rate of 140. This notwithstanding, she bore the operation fairly well, but her convalescence was complicated by a right-sided broncho-pneumonia. She safely weathered this and left hospital completely recovered in exactly one month. To the energy and care of Drs. Moffatt and Tompkyns the patient undoubtedly owes her life. The child lived four days and then, in spite of precautions, developed a septic infection with rapid rise of temperature, as is usual in premature infants where the mucous membranes have so small resisting power, and so died.

Such is the clinical story, and may I now be permitted to append a single lesson which I have read to myself from these and other cases—cases of Cæsarean Hysterectomy. It is this—

If the pregnancy is under seven months, which means that the child is not viable, do not deliver the child at all, simply remove the uterus unopened,— perform an abdominal hysterectomy. In this way you escape all danger of excessive hæmorrhage. If, on the other hand, the pregnancy is more advanced than this, the hope of saving the child is a great one, and the consequent risk from hæmorrhage must of necessity be undertaken. In order to diminish this risk, however, leave the uterus unopened until both ovarian arteries and the uterine of one side have been controlled by ligature. The one uterine is sufficient to carry on the placental circulation and maintain the life of the child. Only then open the uterus, and without regard to placental site, deliver the child and clamp the remaining uterine. In this way, I take it, all danger from excessive hæmorrhage, which is always the great danger, is obviated.

I submit now the specimens from the two cases and photographs taken from these by Dr. Patrick, the photographer to the hospital. These specimens have been preserved and microscopic sections made therefrom by Dr. Charles Gurd, who, during the past year has been devoting himself to special work in Gynæcological Pathology.

Macroscopically the two specimens are, as you see, widely different. In the large specimen, Dr. Gardner's case, the fibroid nodules are multitudinous, more or less intra-mural and to some extent the shape of the uterus is preserved. The enlargement is general and is due in great part to a hyperplasia of the uterine muscle, throughout which are scattered the firmer, fibrous nodules. This tumor is in truth a myo-fibroma and is somewhat uncommon in that its fibrous and muscular parts are more than usually equal and discrete. The hindrance to parturition in this case was due, not so much to an obstruction,— the two larger nodules seen at the cervical pole of the uterus were

above the level of the pelvic inlet,— as to a lack of expelling power in the uterus. The uterine wall was weakened by the presence of the fibroid nodules and strong and effective contraction and retraction thereby prevented.

In my own case, the smaller specimen, the nature and disposition of the tumor growth is markedly different. Here the growth is chiefly fibrous and the nodules are few, large and sub-peritoneal. The largest fibroid occupied the pelvic cavity, almost completely filling it. It grew from the posterior wall of the uterus low down and had tilted the cervix uteri high up above the symphysis pubis, so high that the external os could not be reached by the finger per vaginam. The centre of the large nodule shows necrotic change—a coagulation necrosis due to deficient capsular nutrition. Here there was no possible outlet through the pelvis for the passage of the child. The expelling force was strong enough, parturition was prevented solely by obstruction.

So in these two cases we have exemplified the two ways in which uterine fibroids render natural delivery difficult or impossible:—

1. They interfere with, weaken the powers, the uterine power.
2. They obstruct the passages.

And again, these cases illustrate the gradual passing of this operation from the domain of the "desperate procedure" to that of the commonplace.

THE FREEZING POINT OF URINE.

BY

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Cryoscopy may be defined as the science which deals with the determination of the freezing point of the fluids of the body, notably the blood and the urine; its clinical value consists in the comparison of the freezing point with the observed normal of a series of cases.

The apparatus employed is of German origin, and consists of a series of tubes, one inside the other; from without inwards these are filled with (1) a freezing mixture of ice and salt, (2) air in a jacket, which becomes gradually cooled, and (3) urine. To prevent absorption of moisture from the air in contact with the freezing urine, air passed through sulphuric acid is constantly supplied to the innermost tube. Glass rods allow of constant stirring of the freezing mixture, and determination of the degree of fluidity of the urine which is being tested. At every employment of the apparatus a sensitive thermometer is used, which is first immersed in freezing mixture until its standard zero is determined and noted; the urine is then frozen and its freezing point determined; after each experiment the standard zero is again verified by a control observation.

It will be understood, then, that the object of the experiment is to decide the amount (a fraction of a degree) of variation of the sample of urine or blood tested, from the freezing point of normal urine or blood, decided from a large number of observations.

As the experiments carried out deal entirely with urine, I shall refer but briefly to the results of blood determination. It must be borne in mind that a moderately large amount of blood (10 cc.) is required; this is, in itself, a decided drawback, as the unwillingness of the patient must be considered, and the employment of proper sterilization of the skin and the required hypodermatic syringes render it essentially a practice suitable only to hospital work.

From a large series of cases, Kummel has decided that the freezing point of normal blood is .56° Celsius under that of distilled water, it may vary from .55 to .57°, but practically never more.

This freezing point, further, is unaltered in many cases of severe systemic disturbance and in inflammations of the genito-urinary tract

where there is no actual incompetency of kidney tissue; should incompetency of kidney tissue, however, be present, a change, be it less or greater, does occur in the freezing point, the alteration being always in the direction of lowering of the reading. In systemic diseases, with high fever, even in typhus, Rumpel is authority for the statement that no change occurs; Epstein's assistants report the contrary, and it has occurred to me that the variance of result may be due to the presence or absence of kidney lesion in the course of the acute febrile disease.

In no case where much kidney tissue was thrown out of usefulness, was the freezing point of the blood normal, and in no case where a patient's blood showed a decided lowering, was the result of surgical operation good; on the contrary, where the surgeon temporized until the blood point rose to normal or nearly normal limits, the results (in this series of cases) were favorable. Practical deduction can thus be made: Does the blood show a decidedly lowered freezing point, do not operate, for it means incompetent excretion. Wait until the freezing point rises (that is, until kidney competency is restored); if it does not rise, the prognosis is bad.

Further, should a low freezinz point of blood be present, suspect kidney incompetency (calculous nephritis, chronic interstitial nephritis, tuberculous nephritis, the various nephroses, etc.) . . . . . As to means of localization, we shall presently speak; it suffices to say that the blood freezing point may thus indicate kidney disease, hitherto unsuspected, or may show the amount of affected tissue in a case where it has been previously known to exist.

It will be understood then, that the lowered blood freezing point indicates that excretion is imperfect: A sure supplementary test, upon which Casper, of Berlin, has lately insisted as an auxiliary to cryoscopy, is the well known employment of Phloridzin, which is excreted as sugar by the kidney; the less sugar produced, the greater is the involvement of kidney tissue, but if we decide that a certain amount of kidney tissue is destroyed, (*e.g.*, in a case of tuberculous nephritis), the question arises: "Which kidney is diseased? or are both?" Ureteral catheterization must here come into "play" and the quality of the urine from each kidney must be determined; a careful examination by ordinary laboratory means is essential, and may be sufficient to localize the disease. The urine from each kidney must be separately frozen, and the lower freezing point of the two specimens determines the side of greater tissue-destruction.

To determine the freezing point of the urine in cases of various

diseases, and, if possible, to find out what bearing they had upon the freezing point of the urine, I made, by the advice of Dr. Armstrong, a series of observations upon different urines, from medical and surgical cases; as yet, no specimen from the ureters have been examined, all specimens from female cases were taken by catheter.

The process is tedious, and is essentially a laboratory experiment. The investigator will find it necessary to make preliminary tests to thoroughly familiarize himself with the procedure. The series, to the present, has consisted of 70 cases, of 51 of which I append the results.

The amount of solid, indirectly, the number of molecules, in the urine determines, to some extent, the freezing point—the greater number of molecules, the lower is the reading. While it was realized that the lowest freezing points would be found in cases of greatest concentration (that is, in partial anuria, due to advanced degrees of disease), it was felt that it would be premature to begin with these cases, without having a table of more or less nearly normal-appearing urines; therefore, all the cases selected were those of practically undiminished amount.

It was found that specific gravity does not seem to bear any constant relation to freezing point; as specific gravity varies according to the kind of molecules, and freezing point according to the number of molecules—this is what might be expected.

I do not feel justified in inflicting upon you a meaningless list of figures.

The figures for normal urine are stated, by Casper, as lying between 1 and 2° Centigrade ; ten normal urines varied between .09 and 2.28 the same individual presumably healthy, varying at different times. Five cases of trauma, all severe, gave consistently high freezing points, varying between .03 and .76. Three cases of extensive loss of blood varied from 1.45 to .53, the reading being highest where the loss of blood was greatest. Extensive infections, eight in number, were high between .04 and .67, but abdominal infections were more variable, six varying from .05 to 1.62, the majority being low. Five typhoids were consistently low, from 1.26 to 1.99.

Of nine kidney cases, with fair amounts of urine, the point was between .74 and 1.97. Apparently the limits of fairly good kidney tissue, five recovered or are improved, one died, but autopsy showed a septic nephritis, with numerous pin-head abscesses, but withal very little destruction of kidney tissue. Of this case the reading, as might be reasonably expected, was an average one—1.14.

The other cases (including ulcerations, abscesses, tuberculous and

new growths with no kidney lesion), I fail to classify intelligibly, and I may therefore omit particulars.

I have spoken of the results of this series to indicate the variations met with, and the great uncertainty of the results I have obtained; one dare not, on such premises, draw any conclusions. I trust, however, that to counterbalance the infertility of my own work, I may have indicated, however obscurely, the trend of work and of opinion in these directions.

I beg to thank Dr. R. C. Paterson, of the interne staff, for assistance in the work.

TREPHINING FOR JACKSONIAN EPILEPSY.

BY

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Jacksonian Epilepsy from Trauma—Trephined—Recovery.

C. R., male, aged 20 years, was admitted to the Winnipeg General Hospital May 6, 1896.

The patient complains of having had several epileptic fits since April 3rd, 1896, also of a loss of power in the left upper extremity.

He has always been a strong, healthy, and active boy, only having been confined to bed on one occasion from a scald, when five years old. There is no neurotic family history, and the boy is rather stoical in disposition.

On July 1st, 1895, the patient was hit on the head by a baseball bat, which felled him to the ground, rendering him unconscious, besides producing a good sized scalp wound over the right parietal region, which bled freely. For the next five days he remained in a state of profound coma and life was despaired of. On the 9th inst. the patient was able to recognize friends, and to understand what was said for the first time, but he could not speak in reply. He endeavoured to communicate with them in writing, but failed, owing to writing each succeeding letter of a word on top of the former.

On the 11th of July he suddenly regained the power of speech, and although it was very nasal in character he was able to make his wants known. These symptoms gradually improved. There is no history of paralysis of the tongue.

For the next six months his memory was very short, since which time it has gradually improved, but even now is not so clear as before the date of the injury, and since which time the patient's friends have noticed a vacant and void expression. The patient also suffered from left hemi-paresis, involving the arm and face, which condition still remains resulting in a left squint, facial deformity, weakness of the arm and an inability to button his clothes. He frequently complains of a peculiar numbness and tingling sensation in the left hand and fingers. There has also been partial anæsthesia in the hand, but tactile sensation has been markedly impaired. To illustrate: To determine whether he has secured his jack-knife, for which he has been seeking in his pocket, he is obliged to withdraw his hand and look as he opened his fingers.

Present trouble: About nine months after being injured, on April

3rd, 1896, while at work the patient had his first epileptic fit, which came on with an aura. On the 17th April he had a second, on the 24th of April he had a third, and on the 1st May he had two more. All these convulsions were of the same nature and of the Jacksonian type.

The aura was first felt as a marked numbness and tingling sensation in the left middle finger, which gradually became flexed; next the other fingers contracted, then the wrist and elbow and the muscles of the face began to twitch, and the whole body became involved in clonic spasms—and he lost consciousness.

If taken very early the patient at times was able to prevent a general convulsion by securing the services of some one at hand to grasp the wrist firmly and vigorously rub the hand and fingers. The patient frothed at the mouth during a convulsion, but did not bite his tongue, nor were the urine or fæces voided.

The convulsions becoming more frequent and severe, the young man became unable to follow his employment, and was sent to the hospital for surgical interference.

The general health of the patient was excellent: Pulse 72; temperature 98.5 F. He is well nourished, and there is no evidence of any disease of the thoracic or abdominal organs.

The symptoms appeared to point to some lesion involving the middle part of the ascending frontal and ascending parietal convolutions, more especially the latter.

March 12, 1896. The patient having been antiseptically prepared, the motor area of the brain corresponding to the left arm and face centres was determined, and the scalp and pericranium over this region was reflected downwards. The cranium over this area was trephined and removed, when about one dram of clear serum flowed out. The brain beneath the exposed dura was seen to be discolored, and the middle meningeal artery only remained as a cord and did not pulsate. The cortex of the brain was depressed. The dura mater was incised and also reflected downwards, some adhesions being found between it and the disclosed area beneath. The diseased brain, which was of a chome-yellow color, was depressed and did not pulsate. On incising into its centre about two drams of a thick brownish fluid, with some debris, escaped.

Next, I proceeded to carefully dissect away the diseased area, working towards the healthy cerebrum, and being careful not to cut too deep into the brain substance that looked normal. There was slight bleeding during this stage of the operation, but it was easily controlled by a few fine silk ligatures. The cavity, left, was conical in shape with its apex directed inwards. Its base was about half an inch by two-thirds of an inch in diameter, and its depth about one-half

inch. The cavity having been carefully washed out with sterilized water, and dried, the reflected duramater was replaced and sutured with fine silk. A few fragments of the removed bone, having been kept meanwhile in a warm 8 per cent. saline solution, were distributed on the dura, and a small opening having been made through the scalp and periostium to correspond with the cavity, a 1-16 inch soft rubber drainage tube was inserted into it. The scalp and periostium were now sutured in position, a second small rubber drain being placed under the scalp at the most dependent angle, and having applied a large antiseptic dressing, the patient was removed to his ward.

The patient r mained in the hospital until July 9th, the temperature only reaching 99° F. on three occasions, viz., the evening of the operation, and the two following the second dressing, at which time the drainage tube was removed. During the two months in the hospital he experienced four auras. The first ten days after the operation (dressed three days before and stitches removed); the second and third, four days later (when he was dressed for the second time and the drainage tube removed); the fourth, fifteen days later.

There was no suppuration, and the wound healed by first intention.

The paresis of the hand became less marked directly after the operation, and the two days following the second dressing, at which time The tactile sensation became gradually normal, and his memory and general expression improved.

He remained well until December 1st, when he was reported having a fit during his sleep on the previous night. Later on in December he had a second convulsion, and called to tell me as he was on his way home that day. On examining his head he complained of tenderness on pressure and a small amount of thick pus could be squeezed through a pouting sinus that had appeared in the (injury) scar.

As the patient was determined to return home at once, I advised him to consult a surgeon as soon as he reached Toronto.

May 29th, 1897. C. R. writes that he has undergone a second trephining operation on December 30th, 1896, and reports that a large piece of bone had grown since the first operation, and that it was taking a downward curve, pressing on the brain; also that the new bone was necrotic in places.

He experienced two auras ten days after this operation, but has been in perfect health since.

Remarks: It is evident that there were two hæmorrhages in this case—one extra-meningeal, from the middle meningeal artery, which may have been small; the second from the middle cerebral artery into the motor area.

Since following out the subsequent history in this case I have

ceased to replace fragments of bone removed, but prefer the use of a chisel to reflect a flap of bone together with the muscles and pericranium left attached, and subsequently replacing it or else to use a trephine and leave the bone out.

Leptomeningitis and Local Cerebritis with Softening, followed by Jacksonian Epilepsy and Paresis—Trephined—Recovered.

F. R., male, aged 63 years, was admitted to the Winnipeg General Hospital, January 30, 1901.

The patient was brought to my office complaining of severe pain in the head, poor memory, and an inability to think or apply himself; also weakness in the legs, especially the right, and a loss of power in the arms, decidedly marked in the right hand and arm.

There is nothing noteworthy in the family history; both his father and mother lived to a good ripe age, and all his brothers and sisters are living and healthy. There is no neurotic or tubercular history in the family.

The patient has always been a strong, healthy and active man; fond of rowing, horseback riding, and athletic sports, and especially fond of the violin. He had acute rheumatism when nine years of age, but did not suffer from any complications.

In May, 1900, the patient was thrown from a wagon, striking the fronto-parietal region of the left side of the head against a stone, and a wagon wheel passed over the opposite parieto-occipital region, raising a hæmatoma. A slight scalp wound was produced where the head came in contact with the stone, which bled a little. He was momentarily unconscious, and was picked up by his friends, when he drove home in a dazed state. He did not take to his bed and was up the next day, but was unable to work for about a week, when he began to do light work and continued a light occupation for about three months.

After this time, finding himself gradually getting weaker, both mentally and physically, he confined himself largely to his bedroom, so as to avoid seeing people and any excitement. He became very irritable, and mentally dull and heavy, lost his memory; says he was absolutely useless and did not wish to be disturbed. He suffered much from headache from the first, the pain gradually becoming more severe and constant.

The pain is described as being thumping in character, and felt in the left parieto-frontal region. About once each day he experienced an exacerbation of this pain, which, he says, felt as if he had been hit with a sledge hammer. The pain ran down the right arm into the right forefinger, where it would remain for hours, and

was followed by numbness in the arm and finger. With these severe attacks he was unable to walk, and the only relief secured was by the application of ice to his head.

With one of these exacerbations of pain, three months ago, the patient fell over towards the right side and lost consciousness for about five minutes.

He lost power of the legs, more especially in the right, and required support in walking. The paresis was most marked in the right arm and hand, and his writing became illegible.

When attempting to play the violin he experienced spasmodic contractions of the muscles in the left side of the neck and was obliged to cease playing.

The patient felt chilly nearly all the time, even in a warm room, and any excitement would render him very weak and cause him to break out into a cold perspiration, consequently he kept himself secluded, and became dull, morose, irritable, and felt useless. His memory became very poor, and there was some impediment in his speech—he often forgetting the right word which he wished to use, as well as saying wrong words.

The patient is a well preserved man for his age; his general condition is good, but he feels weak. Appetite fair, bowels constipated, eyesight normal, and there is no optic neuritis. Hearing is impaired owing to cerumen. His gait is somewhat unsteady, and the right patellar reflex is absent; left patellar reflex is normal. All his muscles are weak, but the right hand grip is very deficient. There is no loss of sensation.

Pulse, 76; temperature, normal.

There is no deformity of the cranium. Around the centre of the left fronto-parietal suture is an area of tenderness. On pressure the patient experiencing a sensation as if a pin were being run into the scalp. Over this area on the scalp a thick brown gummy excretion is present.

Heart and lungs show no evidence of disease and the urine is normal. A depressed fracture of the inner plate or a spicula of bone with meningitis was suspected.

The patient having been prepared for operation on January 31st, 1901, I trephined the skull, removing the cranium over the posterior part of the left middle horizontal frontal convolution and over the leg and arm motor centres. The upper part of Broca's convolution was also exposed, and the lower part of the first horizontal frontal convolution. On incising the dura the brain was seen to completely fill the cranium, but did not pulsate. No depressed bone or spicula was found. The subarachnoideal space was much distended and gave

a milky hue to the surface of the brain. This space was broken into and about two ounces of cerebro-spinal fluid escaped with immediate collapse of the central part of the area exposed. The brain immediately around this area pulsated.

I explored the posterior part of the second horizontal frontal convolution freely, when more fluid escaped, and there was either an indefinite cavity beneath it and in the surrounding convolutions for about one inch in all directions or cerebral softening. There was no distinct cyst wall present. The brain remained collapsed and a silk worm gut drain was inserted into its interior, as well as a second drain between the dura and the skull. The cut dura was sutured up with catgut and the scalp with silk worm gut, the bone not being replaced, and an antiseptic dressing was applied.

February 1st, wound dressed and found looking well, dressings soaked with blood and cerebro-spinal fiuid, which fluid continues to flow.

February 4th, re-dressed wound, and part of each drain was removed. Temperature 101° F. Purulent discharge from right ear due to Otitis externa. Ears examined and found to be filled with wax,—syringed out.

February 9th, re-dressed wound, and removed stitches and drains. Wound healed.

February 13th, last dressing. The temperature has been normal since the fourth day after operation. Pulse since operation has ranged from 72 to 90.

For the first few days after the operation the patient experienced some difficulty in articulating, but since that time he has completely regained the power of speech.

March 1st. Patient's general condition has been gradually improving and his appetite is good.

He has completely regained power in his right arm and leg, and can now walk with a firm step and without aid. His memory is good and he again takes an interest in things going on around him. He is bright, jokes, tell stories, and feels well. He has had no pain in the head since the operation, and decided pulsation of the scalp over the area trephined is now present. His right patellar reflex has returned, but is still feeble. He is not able to write a good legible hand.

He says "he feels a new man."

The only way one can account for the rapid and marked improvement in this case is by the relief of intracranial pressure through drainage and the removal of the bone. The deficiency of the brain substance apparently did not involve any very essential area.

THE PHYSICIAN'S PROFESSIONAL RIGHTS AND DUTIES

BY

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When I thoughtfully consider the subject on which I am to address you this afternoon I am deeply impressed with the dignity and importance of the matter. The study of medicine, including the professional rights and duties of a physician, is one of the noblest pursuits to which the human talent can be devoted. It is as far superior to geology, botany, zoology and a score of kindred sciences as its subject, the body of man, the visible lord of creation, is superior to the subject of all other physical sciences, which do so much honour to the power of the human mind.

The physician is, indeed, one of the most valued benefactors of mankind. Therefore, he has ever been held in honour among his fellow-men; by barbarous tribes he is looked upon as a connecting link between the visible and invisible world; in the most civilized communities, from the time of Hippocrates, the father of medicine, to the present day he has been held in deeper veneration than the members of almost any other profession; even in the sacred oracles of Revelation his office is spoken of with the highest commendation.

In considering the physician's natural rights and duties I will endeavour to confine myself to matters which civil and criminal legislation justly undertake to regulate. One of the chief functions of civil authority is to provide for the observance of contracts. Now, the physician in his professional services acts under a double contract, a contract with the Crown and a contract with his individual patients. By accepting his diploma of M.D. from the college faculty and indirectly from the civil authority, he makes, at least, an implicit contract with the Crown by which he receives certain rights conditioned on his performance of certain duties. In offering his services to the public, he also makes an implicit contract with his patients by which he obliges himself to render them his professional services with ordinary skill and diligence, on condition of receiving from them the usual compensation.

The usual rights are not granted him arbitrarily by the Crown, they are founded in natural justice, but made definite and enforced by human legislation. Take, for example, his right to receive due compensation for his services. This right was not recognized by the

* Read before the New Brunswick Medical Society.

old Roman law in the case of advocates and physicians, nor by the common law of England until the passing of the Medical Act in 1858. Surgeons and apothecaries could receive renumeration for their services, but not physicians. These were presumed to attend to their patients for an honorarium or honorary, that is, a present given as a token of honour.

Certainly, if doctors by common agreement waived their right to compensation, or agreed to be satisfied with any gift which the patient might choose to bestow, they would be entitled to honour for their generosity; but they are not obliged to such conduct on the principles of natural justice. For, by nature all men are equal, and therefore one is not obliged, under ordinary circumstances, to work for the good of another. If he renders a service to a neighbour, equity or equality requires that the neighbour shall do a proportionate good to him in return. Thus the equality of men is the basis of their right to compensation for services rendered. The physician's right to his fee is a natural one and on his patients rests the natural duty of paying it. Not to pay the doctor's bill is as unjust as any other manner of stealing.

As to the amount of compensation to which the doctor is justly entitled. By the law of this country, all branches of the profession may recover a reasonable compensation for their services, the amount of which, unless settled by law, is a question for the jury, in settling which the eminence of the practitioner, the delicacy and difficulty of the operation or of the case, as well as the time and care expended, are to be considered.

The main principle regulating all compensation is that there shall be a sort of equality between the services rendered and the fees paid for them. Ignorant people sometimes find fault with the amount charged as a doctor's fee. There may, of course, be abuses by excess; but men have no right to complain that a doctor will ask as much for a brief visit as a common laborer can earn in a day. This need not seem unfair if it be remembered that the physician had to prepare, during many years of primary, intermediate, and professional studies, before he could acquire the knowledge necessary to write a brief prescription. Besides, it may be that his few minutes' visit is the only one that day, and yet he has a right to live in decent comfort on his profession together with those who depend on him for support.

We must, however, remember, on the other hand, that excessive fees are nothing less than theft, for theft consists in getting possession of another's property without just title.

I have said that the rights conferred on the physician by the Crown

was conditioned on his performing certain duties. He owes the same duties to his patients in virtue of the contract, explicit or implicit, that he makes with them by taking the case in hand.

Under ordinary circumstances neither the Crown nor the patients can oblige him to exercise his profession at all; but, if once he has taken a case in hand, he can be justly held not to abandon it till he has given his patient a fair opportunity of providing another attendant, even the fear of contagion cannot release him from that serious obligation.

The duties arising from the physician's two-fold contract with the Crown and with his patients are chiefly as follows:

First: He must acquire and maintain sufficient knowledge of his profession for all such cases as are likely to come in his way. No doctor has the right to attempt the management of a case of which he has not at least ordinary knowledge. The courts justly hold him responsible for any serious injury resulting from great negligence; in such cases they will condemn him for malpractice. I would here remark that in an age in which the science of medicine is making such rapid progress, every doctor is in duty bound to keep up with the improvements made in general practice, and in his own specialty, if he has one.

A second duty is that of proper diligence in treating every single case. Many a person suffers injury to health or even loses his life in consequence of a doctor's neglect. Gross negligence is an offence which makes him punishable by the courts, if it results in serious injury. But even if such injury cannot be judicially proved, or has been accidentally averted, the moral wrong remains and is to be settled with the all-seeing Judge.

A third duty of the profession is to use only safe means in medical and surgical practice. He has no right to expose his patient to needless danger. What is to be thought of such remedies as will either kill or cure? They cannot be used as long as safer remedies are available and capable of effecting a cure; for neither doctor nor patient has a right to expose a human life to unnecessary risk. But when no safer remedies are going to effect a cure, then prudence itself dictates the employment of the only means of success. In such cases, however, the patient, or his parents or guardian, should as a rule be informed of the impending danger, so that they may give or refuse their consent if they please. For next to God, the right to that life belongs to them rather than to the physician. The same duty of consulting their wishes exists when not life, but the possible loss of a limb is at stake, or the bearing of uncommon sufferings.

Moralists teach that a man is not obliged in conscience to submit to an extraordinary painful or revolting operation even to save his life. Certainly when the natural law leaves him at liberty, the physician cannot compel him to submit to his dictation; all he can do is to obtain his consent by moral suasion.

As a consequence from the doctor's duty to use only safe means, it follows that he cannot experiment on his patients by the use of treatment of which he does not know the full power for good or evil. Nor is he excused from his responsibility in this matter by the fact that the experiment thus made on one patient may be very useful to many others. His contract is with the one now under treatment, who is not willing as a rule to be experimented upon for the benefit of others, and if the patient should be willing the doctor cannot lawfully expose him to grievous danger unless it be the only hope of preserving his life. This follows from the principle explained before, that human life belongs chiefly to God, not to man exclusively.

There are various kinds of medical treatment to which we can scarcely have recourse without exposing ourselves to serious evil consequences. Such is the use of cocaine, morphine and in special cases of alcohol. The drugs in themselves are useful, but they often lead to evil results. If the doctor is satisfied that a dose of morphine will do more good than harm, he can, of course, prescribe it. Still, in such matters he must remember that the good effect is but temporary, while its pernicious consequences, especially when habits are thus contracted, are liable to be permanent and cumulative. Besides the good results affect the body only, the evil often affects the body and soul. Many a wreck in health and morals has been caused by imprudent recourse to dangerous treatment, where a little more patience and wisdom would have been equally efficient in curing the bodily ailment without any deleterious consequences.

The sixth duty of a doctor is of a different kind. There exists a tacit and implicit contract between him and his patients that he shall keep their secrets of which he becomes possessed in his professional capacity. It is always wrong wantonly to betray the secrets of others, but the doctor is bound by a special duty to keep his professional secrets, and it is doubly wrong and disgraceful in him to make them known. For instance, if he has treated a case of sickness brought on by sinful excesses of any kind, he is forbidden by the natural law to talk about it to such as have no special right to know the facts. Parents and guardians are usually entitled to be informed of their children's and their ward's wrongdoing, that they may take proper measure to prevent further evil. Besides the doctor is properly in

their service, he is paid by them, and, therefore, his contract is with them rather than with the children. He can, therefore, inform them of what is wrong, but he cannot inform others.

It is a debatable question in Medical Jurisprudence whether the doctor's knowledge of criminal acts should be privileged before the courts, so that he should not be forced to testify to a crime which he has learned from his patients while acting as their medical adviser. By statute, in some of the United States, communications made by a patient to a physician when necessary to the treatment of the case are privileged, and the physician is either expressly forbidden or not obliged to reveal them. Such statutes exist in Arkansas, Indiana, Ohio, Michigan, Montana, Missouri and New York. Such communications, however, must be of a lawful character and not against morality or public policy, hence, a consultation as to the means of producing an abortion is not privileged; not would be any similar conference held for the purpose of devising a crime or evading its consequences.

The practical rule for the doctor's conscience on the subject of secrecy is, that he must keep his professional secrets with great fidelity, and not reveal them except in so far as he is compelled to do by a court of justice acting within its legal power or competency. If so compelled he can safely speak out; for his duty to his patient is understood to be dependent on his obedience to lawful authority.

Besides the rights and duties which arise for the physician from his contract with the Crown and with his patients, there are other claims on his conscience, which proceed from his character as a man, a Christian and a gentleman. As a man, he is a member of the human family, not a stranger dwelling amid an alien race, but a brother among brothers. The maxim of most secret societies is that every member must come to the assistance of every brother member in distress. But the law of nature and of nature's God is wider and nobler, it requires every man to assist every fellow-man in grievous need.

As physicians, as men, you will have duties to the poor, who cannot pay you for your services; they are your fellow-men. The rule of charity for physicians is that they should willingly render to the poor for the love of God those professional services which they are wont to render to the rich for pecuniary compensation. While thus treating a poor patient they should be as careful and diligent as they would be for temporal reward.

In this connection of regard for the poor, allow me to call your attention, gentlemen, to a point which students of medicine are apt

to forget at times; it is the respect which every man owes to the mortal remains of a departed brother. I do not know that a people has ever been found, even among the barbarians, who did not honour the bodies of their dead. For the good of humanity, dead bodies may be subjected to the dissecting knife, but never to wanton indignities. Reason tells you to do by others as you wish to be done by. Ever handle human remains in a humane manner, and as soon as they have answered the purpose of science, see that they be decently interred, if possible.

There are other duties which you owe, not as men, but as Christians. All of us enjoy the blessings of Christian civilization, even those who are not Christians themselves. We are dealt with by others on Christian principles, and we ought to treat others in the same spirit. When your patients are in real danger of death, let them have a good chance to prepare properly for their all important passage into enternity. Give them fair warning of the situation. Doctors and relatives are often afraid of alarming the patients and thus injurying their health. In any case, the interests of the future life are too important to be ignored. For the same reason, the physician should not prescribe such doses of morphine as will render the patient unconscious at a time when he should be preparing to meet his Judge. This would not be kindness, but cruelty.

Lastly, I must consider the duties which a doctor owes to others and to himself as a gentleman. It may not be easy to define what is meant by "a gentleman," and yet to some extent we all know it; we recognize a gentleman when we meet one, we pay him sincere homage in our hearts. We readily allow him to influence us and to guide us. We esteem him instinctively as a superior being, as we distinguish a precious stone from a common pebble; so we value a gentleman for precious qualities exhibited in the beauty of his conduct. His conduct ever exhibits two characteristic marks; a proper degree of dignity or respect for self and a proper degree of politeness or respect for others. Self respect will not allow him to do anything which is considered vulgar, rude or selfish; he will avoid the two extremes,of self-neglect on the one hand, and self-display on the other. His respect for others will make him treat all round him so as to make them feel comfortable in his presence, he will avoid whatever gives him pain or causes embarrassment to even the lowest member of society.

Gentlemanliness has much to do with every one's success in life, and in particular with a doctor's success. It is especially when we are sick that we are sensitive to everything displeasing in the conduct

of others. It is not then the bold thinker or the extensive reader that is the acceptable visitor to the sick room, but the gentlemanly consoler who says the right thing at the right time, whose very eye expresses and whose countenance reflects the thought and sentiment most appropriate on the occasion.

There are most able physicians who are not gentlemen, and there are in the medical profession gentlemen who are rather poor physicians; but, as a rule, I believe, the gentlemen will thrive where the genius will starve. It is more or less the same in other professions. I know learned lawyers to-day who are far from prosperous, while men ten times their inferiors in learning, are getting rich. I remember a most skilful physician, now no more on earth, who was a very genius in the science of medicine; but he was so filthy in his habits that many dreaded his visits and would sooner have a man of less ability and gentler manners as their family physician.

Gentlemen, habits good and bad cannot be put on and off like a dress coat. They are lasting qualities, the growth of years, the result of constant practice and self-denial or self-neglect.

Uniting the external decorum of a gentleman with a thorough knowledge of his profession, and with what is still more important, the virtues of a conscientious man and a sincere Christian, ever true to the sound principles of morality, you will be an honour to yourselves, an ornament to your noble profession, the glory and joy of your Alma Mater, a blessing to the community in which Providence will cast your lot, as the dispensers of health and happiness and length of days to your fellow-men.

MORGAGNI, THE FATHER OF MODERN PATHOLOGY: AN APPRECIATION AND A COMPARISON.*

BY

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At this juncture, when the hand of death has taken from our midst the greatest personality in the realm of contemporary scientific medicine and has thus brought to a close the most fruitful chapter in the story of pathological research, we are impelled to look back over the way we have journeyed, in order to see after what manner we have been lead, and, from the gleanings of the past, perchance to hazard a guess at the future.

In the history of Pathology, or more correctly speaking, that branch of it known as Morbid Anatomy, three names stand out conspicuously, Morgagni, Rokitansky, and Virchow. The first of these was more than a morbid anatomist. He may be truly said to have created the scientific method. Rokitansky, intermediate both in time and in achievement, has the somewhat doubtful merit of converting Morbid Anatomy into an exact science distinct from clinical teaching, and more or less remote from practical needs. His chief claim to fame is that he stimulated observation and thus contributed to bring to perfection those methods of diagnosis of which his friend Skoda was at the time the most brilliant exponent, and which have made Vienna for many years the Mecca of the medical student. Of Virchow it is perhaps too soon to speak, for we are still living in the glamour of his perfect method and multitudinous achievements. As a scientist his fame will, however, principally rest on his "Cellular Pathology" which gave the *coup-de-grace* to the hitherto prevailing erroneous conceptions of disease, and transferred the centre of gravity, so to speak, of disease processes from the organ to the cell.

Although separated in point of time by a century and a quarter, the first and last of this illustrious triumvirate, although standing as they do for the old and the new, present many striking resemblances. It is, perhaps, not too much to say that without Morgagni, Virchow could not have been, for it is to Morgagni that we owe that accuracy and completeness of research that is so essentially the modern characteristic and for which his work is scarcely surpassed by that of the

* Read at the meeting of the McGill Medical Reporting Society on Dec. 9, 1902.

present German school, which looks to Virchow as its founder and inspirer.

Giovanni Battista Morgagni, the founder of the science of Pathological Anatomy, and one of the most noted personalities of his time, was born February 25th, 1682, at Forli, an ancient and important town about fifty miles to the south of Bologna. His parents were respectable people in good circumstances, and thus the subject of our sketch was enabled to obtain that most important thing, a good preliminary education. Morgagni entered the school of his native town and soon became conspicuous for his attainments, notably in history and belles-lettres, and was distinguished especially for his readiness in classical epigram. He entered the University of Bologna at the age of nineteen, and engaged in the study of philosophy and medicine, graduating as doctor in both faculties three years later with much distinction. His first masters in medicine were Valsalva, Albertini, and de Sandris. He was shortly appointed prosector to Valsalva, who held the important position of "demonstrator anatomicus" in the medical department. Here he assisted Valsalva in the preparation of his famous work on the "Anatomy and Diseases of the Ear" which appeared in 1704, and laid the foundation of that accurate observation which later made him the most distinguished anatomist of his time. When Valsalva was translated to Parma, Morgagni succeeded to his demonstratorship. He very soon made his mark, being elected president of the Academia Inquietorum when only twenty-four years old. Even at this period he showed a tendency to break away from the traditions of antiquity by insisting upon personal observation and by discouraging the prevalent tendency towards abstract speculation. His lectures were further made interesting by the demonstration of anatomical preparations, a new and important departure in the art of teaching. He made several independent discoveries, more especially in connection with the muscles of the hyoid bone, the uvula, and the larynx, and his name is perpetuated at the present day by the *sinus* and *hydatid* of Morgagni. His communications were published under the title of "Adversaria Anatomica," and included observations on the larynx, the lachrymal apparatus, and the pelvic organs in the female, certainly a wide range of subjects. After some time he resigned his position and for the next two or three years gave himself up to researches in anatomy, chemistry, and pharmacy. He then entered upon the practice of medicine in his native place, and the renown of his attainments was so great that he soon acquired a considerable clientèle and was even sought in consultation by physicians much his senior. "Adeo erat in observando attentus, in prædicendo cautus, in curando felix," ran the eulogy which might be predicated

of the most successful physicians of the present day. Tiring of this, however, or the scientific spirit proving too strong, he sought an opportunity of returning to academic work. Having made friends with the elder Guglielmini, professor of Medicine at Padua, he was attracted to that seat of learning, and when, on the unexpected death of Guglielmini, Vallisnieri succeeded to the vacant chair, Morgagni was appointed professor of Theoretical Medicine. From this time he taught at Padua with the most brilliant success until his death sixty years later. After three years he was appointed to the chair of anatomy by the Venetian Senate, and thus became the successor of an illustrious line of scholars, including Vesalius, Fallopius, Fabricius, Gasserius, and Spigelius. His stipend was gradually increased until he was receiving the unprecedentedly large sum of twelve hundred golden ducats. His great reputation led to his being elected into many learned societies, among them the Imperial Cæsareo-Leopoldina Academy (1708), the London Royal Society (1724), the Academy of Sciences of Paris (1731), the Imperial Academy of St. Petersburg (1735), and the Academy of Berlin (1754), Among his more celebrated pupils was Scarpa. So proud was the town of Forli of its distinguished son that to perpetuate his memory in some concrete form they placed his bust, some years before his death, in the municipal buildings, with the following inscription:

J. Bapt. Morgagno, Nob. Forol.
Patria,
Inventis, Librisque ejus probatissimis
ubique gentium illustrata,
Decrevit A.D. MDCCLXIII.,
Ponendam in celeberrimo hoc loco
Marmoream effigiem
Adhuc viventis.

Morgagni was a man of magnetic personality, tall and robust, with blonde hair and blue eyes,

"And over those ethereal eyes
The bar of Michaelangelo."

Of cheerful and agreeable address, he was immensely popular with all classes of society, and his lectures attracted students from all parts of Europe. He was the friend and favorite of distinguished senators, cardinals and pontiffs. Among the latter may be mentioned Popes Clement XI. and XII., and Benedict XIV. No one of any note came to Padua without seeing Morgagni. He was visited by the then King of Sardinia, and was received by Emperor Joseph the Second. All

were impressed by his urbanity and distinguished attainments. As a result of the attention he received he became, perhaps, a little vain; at any rate he was not oblivious of fame, "that last infirmity of noble minds," for we read that he was mightily offended when a foreign scientist referred to him in his work without prefixing the title "illustrissimus" to his name. With the exception of this trifling foible, one could find little fault with his life. The simplicity of his tastes,

G. B. Morgagni.

even after he had become rich, caused him to be taxed with avarice. Yet we find him contributing for many years to the support of a poor man who had saved him from drowning in childhood. He lead an even, contented, and happy life. A deeply religious man, and perhaps because of this, he yet believed in judicial astrology, in spite of his strong rationalistic turn of mind.

Unlike many, he was enabled happily to gratify his supreme passion, the thirst for knowledge, in the way that best suited his tastes and disposition. His death occurred at the advanced age of ninety years, after a life full of honour and usefulness.

Morgagni was a man of profound scholarship and wide sympathies and his attainments may well strike us with astonishment. Apart from his more scientific studies, his writings on philology, archæology, literature and history were numerous, proving that he lived in an age when broad culture was still appreciated. Among his works of this class may be mentioned his letters to Lancisi on the "Manner of Cleopatra's Death," Commentaries on Celsus and Sammonicus, notes on Varro, Alpinus, Vegetius, Columella, and Vitruvius, and archæological papers on the districts round Ravenna and Forli. During the first few years of his career at Padua, he produced several series of Adversaria Anatomica, largely on controversial points, for he had

become involved in a dispute with Bianchi on the structure of the liver, but for the next twenty years his medical publications were few and far between, including only the "Nova Institutionum Medicorum Idea," the "Vita Guglielmini," notes on gall-stones, varices of the vena cava, calculi, and memoranda on medico-legal subjects. In 1740 he brought out an edition of the "Works of Valsalva," with plates, to which he contributed a Life, a Commentary, and many additional notes of his own. It was not until 1761, when he was in his eightieth year, that he published the work that rendered him immortal, laid the foundation of our present exact methods of research, and transformed the spirit of medicine. This was the "De Sedibus et Causis Morborum per Anatomem Indagatis Libri quinque," which leaped at once into popularity, going through three editions in four years, and before his death in 1771, had been translated into French, English and German. The work was confessedly based upon that of Théophile Bonet of Neuchatel, entitled "Sepulchretum: sive Anatomia Practica ex Cadaveribus Morbo Denatis," the first systematic treatise on Morbid Anatomy that had hitherto appeared, which was published at Geneva in 1679. This work enjoyed great reputation in its day, for Haller speaks of it as "an immortal work, which may in itself serve for a pathological library."

Bonet's production dealt with the subject under four heads: first, diseases of the head; second, those of the thorax; third, organic lesions of the abdomen; and fourth, diseases the seat of which was unknown. In the last group were placed tumours, plagues, syphilis, fevers, and gout. The book represented much labor and patience, but would now be considered as of little value. It dealt mainly with curiosities and monstrosities, and was compiled largely from other men's observations, regardless of their authenticity. Bonet lacked the critical faculty and his work is diffuse, inaccurate, and misleading, on account of his ignorance of normal anatomy. Further, it lacked an adequate index so that its contents were not readily accessible. Of its shortcomings Morgagni was well aware and refers to them at some length, but in his criticism perhaps did Bonet less than justice, considering that he had the immense advantage of living some eighty years subsequent to that author.

Morgagni in his preface tells us in a very modest and simple-minded way how for a long time he had entertained the idea of supplementing Bonet's work as he was conscious of many defects in that renowned production which he felt he could remedy by bringing to the subject the wealth of his own observations and that of his master, Valsalva. Besides, however, the very laudable desire to perfect and

supplement previous work, his practical common-sense asserts itself, for, he says, "I have had two views in publishing these writings, the first that I might assist the studies of such as are intended for the practice of medicine; the second, and this the principal view, that I might be universally useful, though this cannot happen without the concurrence and assistance of the learned men in every quarter."

He had finished his edition of Valsalva in 1740, and it came about that he was enjoying a holiday in the country together with a young friend who was curious in many branches of knowledge. In the course of conversation, the Sepulchretum of Bonet was referred to, and the young man suggested that Morgagni should place on record his own observations. This he was the more ready to do as it coincided with his own inclinations, and it was soon arranged that he should write letters on the anatomy of disease for the information of his young friend. The idea was carried out until seventy letters in all were the result. After the beginning of the undertaking many controversial points began to be agitated so that although he did not alter what he had written on account of the labor involved, he was careful for the future, as he said, to give no one a justification for complaint. With characteristic modesty and greatness of mind, he simply took his stand on his facts, allowing others to dissent or not as they pleased from his interpretations of those facts. This he did "Because I should otherwise be afraid, lest, when speaking from opinion only, notwithstanding I make probability my guide, somebody should nevertheless rise up and retort upon me agreeably to what Homer says (Odyss. L., 19) 'Dixit mendacia multa, dicens veris similia,'" His work has been criticised on the ground of its discursiveness, but he explains that in order to give the weight of personal experience to his writings, he took care to intersperse other remarks relative to the practice and history of medicine and the history of anatomy, with many other things relative to the studies and pursuits of the young gentleman to whom he addressed the letters, and this with the further intention "to withdraw his imagination for a while from the horrid and perpetual idea of diseases and dead bodies."

The subject is handled in five books, dedicated respectively to Trew, Bromfield, Senac, Schreiber, and Meckel, as representing the various learned societies of which he was a member. These were; first, diseases of the head; second, of the thorax; third, of the abdomen; fourth, general and surgical diseases; and, fifth, of such other things as may be added to the other four books. The work is based upon the results of some six hundred and forty autopsies occurring generally in his own experience, but occasionally taken from notes of Valsalva

and Albertini not previously published. It would take up too much space to give one of his protocols in detail, but the cases are well and systematically arranged and given with a precision and completeness characteristic of more modern work. The clinical symptoms and the antecedent circumstances are given with completeness and are afterwards discussed in the light of the pathological findings. Morgagni's reverence for his old teacher everywhere comes out, for, whenever possible, he gives Valsalva's opinion first and then supplements it with his own. Frequently he goes off in a long digression on General Pathology and Therapeutics in which his thorough scholarship comes out in his numerous references to former and contemporary literature. His work differs from the modern text-book on Morbid Anatomy in the point of view. He approaches his subject from the clinical side and the various symptoms determine the order of the presentment of the anatomical lesions. It was not until twenty years after the idea was first conceived that his work was given to the world as a systematic treatise in two folio volumes under the title "De Sedibus et Causis Morborum per Anatomem Indagatis Libri quinque" (Venetiae, 1761).

Before we can estimate the work of Morgagni at its true value we must understand fully the state of Medicine at his time, for it would be manifestly unfair to judge him according to the standards of the present day.

Ever since the time of the Alexandrines and the Arabians, medical science had lain fallow, and it was only in the thirteenth and fourteenth centuries that signs of life became manifest in common with that remarkable renascence of thought which spread over Europe at this time. Medical practice followed the tenets of two main schools, the Galenists and the Chemists, the former of which was hide-bound by tradition, and the latter unscientific and purely empirical. It was impossible for medical knowledge to advance until the restrictions were removed from the study of anatomy through dissection of the human body, so that theory could be tested by observation.

The first school of literature, law and medicine, was Bologna, which in the thirteenth century had more than ten thousand students, and for more than four hundred years retained an easy preeminence in the realm of thought. At the beginning of the fourteenth century, Mondino di Luzzi, called the "Restorer of Anatomy," filled the chair of Medicine, which at that time included Anatomy, and obtained permission to dissect an unclaimed human body. Mondino is said to have dissected two female subjects, and later published a text-book of Anatomy entitled "De omnibus Humani Corporis interioribus

membris Anatomia," which for two hundred years was the standard authority. From this time on until the sixteenth century there is but little progress to record. Then the work of Berenger, who is noted as having introduced the mercurial treatment of syhpilis, Sylvius, Etienne, and Servetus (burnt by Calvin) paved the way for most remarkable developments. Vesalius (1514—1564), perhaps the greatest anatomist that ever lived, revolutionized anatomy, and in his "De Humani Corporis Fabrica," dealt a death blow to the Galenical philosophy.

Many able men were now lead to think and observe for themselves, among whom may be mentioned Eustachius, Fallopius, Varolius, Colombo, Fabricius, and Casserius. The inductive method of reasoning, which we associate with the name of Lord Bacon, as well as the philosophical systems of Cartesius and Spinoza, gave a profound and lasting impetus to the pursuit of the natural sciences, and the employment of the microscope, with the notable anatomical and zoological researches of van Leeuwenhoeck, and more than all Harvey's great discovery of the circulation of the blood, did not a little to establish the art of Medicine on a scientific basis. Malpighi (1628—1694) was the first to employ the microscope in the study of Anatomy and by his numerous discoveries may be truly said to be the founder of the science of Histology. It is the glory of the Italian schools that they were the first to break away from tradition and, building upon a foundation of accurate observation, thus created the science of Descriptive Anatomy. The mere mention of the names of Eustachius, Fallopius, Aranzio, Varolius, Botallus, Malpighi, Valsalva, and Morgagni, serves to remind us of what we owe to Italy.

Previous to Morgagni the normal anatomy of the human body had been fairly fully and in some parts exhaustively written, but any attempts at describing diseased conditions had been desultory and tentative. There were not wanting, however, those who attempted to find the hidden causes of disease in the dead body. Antonio Beneveni (born 1540) was, perhaps, the earliest of these, and with him may be mentioned Eustachius, Coiter, Colombo, Paaw, Nicolas Tulpius (immortalized in Rembrandt's great picture "The Anatomy Lesson" at The Hague), Panaroli, Wepfer, Ruysch, Peyer, Glisson, and Bonet. Glisson (1597-1677), appears to have been familiar with the idea of systematically comparing the organs in a series of bodies and noting the lesions that invariably accompanied a certain train of symptoms, and Harvey remarks that there was more to be learned from the dissection of one person who had died from consumption than from the bodies of ten persons who had been hanged. Up to the

time of Morgagni the causes of disease were, however, still looked for in certain occult principles only poorly understood. During the seventeenth century three main views were held as to the causation of disease. One was the "mystic" idea of natural philosophy, of which van Helmont was the leading exponent. He personified the vital principle under the name "Archæus," and recognized an Archæus insitus (imported) and an Archæus influus (congenital). An abnormal condition of the Archæus, the so-called "Idea morbosa," controlled the development of disease. The second was the "Chemico-therapeutic" and "physico-therapeutic" idea. The most important representative of the former school was Sylvius (1614—1672), who correctly enough based the practice of medicine on anatomy, physiology, and clinical observation, but explained disease processes as "fermentation," in which, perhaps, he was not so hopelessly wrong, but he further believed that the "acrimony" in the blood was due to what he called "volatile" and "animal" spirits. The third school was the Hippocratic, of which our own Thomas Sydenham was the leading representative. He was the first to advocate a thorough systematic examination of the patient. With Hoffman (1660—1742), Stahl (1660—1754), and Boerhave (1668—1738), the preeminence in medicine so long enjoyed by Italy passed to Germany and Holland, and Leyden now became the medical metropolis, only to pass on the torch of learning to Vienna through the influence of van Swieten, the distinguished pupil of Boerhave. With the conflicting views of disease prevalent at this time, all of them based upon theory, we can understand how necessary it was for some master-mind to systematize what was known and to direct scientific thought into proper channels. As we have seen, morbid Anatomy is the legitimate offspring of normal Anatomy, and Morgagni is thus the scientific son of Vesalius, Fallopius, Spigelius, and Valsalva. It was both natural and fitting that he should have gained his inspiration at Bologna and should carry on the tradition of the school made famous by his illustrious predecessors.

It was Morgagni's great merit that he introduced precision into the descriptions of disease, based his views upon personal observation, and tried to harmonize the clinical manifestations of disease with the morbid appearances. He was the first to comprehend and teach the necessity of basing diagnosis, prognosis, and treatment upon the anatomical basis of disease. To a large extent he broke loose from the traditional conceptions of disease prevalent in his time and attempted to establish medicine on a rational basis. In this he was immeasurably ahead of his time, and, although his book is in some particulars open to criticism, for many better books have been written

than the De Sedibus, his method of attacking the subject is essentially the one we employ to-day. He, however, like some who have come after him, often erroneously regarded the effects of disease as its cause. Morbid Anatomy was, in his opinion, of value even when it did not contribute directly to the cure of disease, from the fact that it threw light upon the problems of Physiology and normal Anatomy, and suggested the lines upon which palliation might be attempted. It is to Morgagni to whom we owe the aphorism that Observations should be weighed and not counted. In the orderliness and precision of his methods, his exhaustiveness and freedom from prejudice, Morgagni is singularly modern. It may be truly said that Morgagni once and for all established on a firm basis those great principles that underlie our modern methods of scientific research, not only in medicine, but in natural philosophy in its widest sense. Symptoms were no longer placed together in arbitrary groups but began to be viewed as "the cry of the suffering organs" and the new method placed on a broad scientific basis Sydenham's grand conception of a "natural history" of disease. Morgagni's work substituted localization for generalization, and precision for vagueness. It is not too much to say that Lænnec's invention of the stethoscope to wrest their secrets from the heart and lungs and Bright's endeavor to discover the condition of the kidneys by means of chemical tests applied to the urine were the direct results of this new conception.

While it is true that Morgagni was the first to grasp those great underlying principles that should guide us in the investigation of disease, it cannot be denied that he came far short of establishing a complete system of Morbid Anatomy. He could not entirely shake himself free from the erroneous conceptions of disease prevalent in his day. Although the microscope was in use before his time, he does not appear to have employed it in his investigations. The science of Histology was in its swaddling-clothes, that of Pathological Histology was still to be born. It was only after the comparatively recent perfection of the microscope that it became possible to spell out the language of disease and create an exact science as Virchow did. To the employment of instruments of power and precision we owe the doctrine of the "cellular pathology" but the spirit of the research is Morgagni's. Morgagni created no System of Medicine, and erroneous and conflicting views persisted up to the middle of the nineteenth century. Virchow cleared away the mists that obscured the mirror of truth and did more than any other man to transform medicine from an art into a science. Morgagni in creative power was a hundred years ahead of his times; Virchow was the sublimated product of

preceding ages. Morgagni possessed the nimble, prehensile mind of the Italian: Virchow was the type of the plodding, consciencious, and moreover practical German. Like Morgagni, Virchow was a man of wide sympathies, but while Morgagni was always somewhat of a dilettante, dazzling by his brilliancy, and interesting himself largely in literary and antiquarian questions, Virchow was the essentially practical man of science, a politician in the full sense of the word, busying himself with everything that could ameliorate the lot of man. This one thing, and this the most important, Morgagni and Virchow possessed in common, the love for and the endeavor after truth, the hall-mark of the true scientist. Considered in relation to the age in which he lived and the limitations by which he was bound, Morgagni was one of the brightest spirits in the history of Natural Science. To comprehend and establish the unchanging principles that should underlie all scientific research is no doubt more than to rigidly apply those principles, but while we may, therefore, be disposed to award the palm of genius to Morgagni, yet Virchow was undoubtedly the greater man.

It may be safely said that with Virchow closes one great chapter in the history of Pathology. His period was the time of accurate observation and description. The manifestations of disease are now well understood and what may be called the "regional" morbid anatomy has been described and re-described until further advance is likely to be trifling. Every pathologist knows how hard it is, for instance, to discover a new tumour, and in the future we can only expect that our knowledge will be perfected in some minor points. The efforts of the next generation will be taken up with the problems of the causation of disease, and the manner in which it brings about its effects. What we need now is a second Morgagni to point the way to a philosophy of Pathology. The concrete manifestations of disease are well known; the theory of disease and especially the therapeutics are still somewhat nebulous. And just here we may stop to consider if we are not in danger of being led astray. With the predominance of the German school in the domain of medical thought, there is at present a notable tendency towards minute and more or less desultory investigation. May we not have too much of a good thing? There is in Pathology, and here I use the term in the widest sense as the doctrine and manifestation of disease, a regrettable tendency towards excessive specialism. We are too apt to separate in our thought and teaching clinical observation from morbid anatomy which is the foundation of the whole edifice. Our clinicians should be to-day as they were of old, well-equipped pathologists, and

our pathologists should make the best clinicians. In this we need to get back to the spirit of Morgagni. He was at one and the same time a renowned anatomist, a skilled pathologist, a brilliant teacher, and a successful practicing physician. His scholarship, his breadth of sympathy, his appreciation of other men's work, and his practicality, stamp him as being above the besetting sin of the latter-day specialism. We need more than ever to draw our inspiration from the past, and cultivate those broad principles, in short the "humanities," which do more than anything else to elevate our calling as physicians to the dignity of a liberal profession.

RETROSPECT

OF

CURRENT LITERATURE.

Surgery.

UNDER THE CHARGE OF GEORGE E. ARMSTRONG.

The Treatment of Inoperable Cancer.

A discussion on this most interesting subject engaged the attention of the surgical section of the late meeting of the British Medical Association for a time. These cases are not at all uncommon; if referred to the hospital by the general practitioner, they generally do him harm, because they will infer that he must be lacking in knowledge to have sent them there (often at some trouble to themselves) when nothing could be done. The discussion was participated in by Henry Morris, G. T. Beatson, Thomas Bryant and other distinguished English surgeons.

After defining "inoperable cancer" as (1) primary cancer affecting inaccessible parts, (2) cases of acute diffuse cancer and very rapidly growing infiltrating growths with no well defined border line, and (3) recurrences of the disease in multiple metastatic foci or in an inaccessible focus, Mr. Morris went on to show that treatment meant one or two things:—(1) The employment of remedies other than the knife to cure, ameliorate or retard the growths. (2) The employment of the knife to relieve pain, prolong life, restore function or otherwise to ameliorate the patient's condition.

The different points made by the participants in the discussion were as follows:—

(1) That many cases now operated upon by extensive operations should really be transferred to the inoperable class. In other words, that cases so extensive as to require hours for their removal were so very liable to metastatic recurrences, even if they did not recur locally, that the result would not justify the risks of such an operation. These remarks refer especially to cancer of the stomach, intestines, body of the uterus, and some mammary recurrences.

(2) That more use should be made of the curette followed by cau-

terization to arrest these growths and keep them in reasonable grounds, and at the same time to render them less painful.

(3) Regarding toxins and serum-therapy, the difficulty is that all these agents are purely empirical and must remain so until the cancer germ, or whatever is the cause of cancer, is determined and isolated. Coley's injection of mixed serums only claims to be of service in sarcomas, and of the spindle-celled variety at that, and even there it has not always proved good. So also for the other serums, toxins and chemical substances which aim at the disease through the general circulation and not locally.

(4) Beatson's treatment, removal of the ovaries followed by thyroid feeding, is applicable only to mammary cancer and not reliable. In cases of inoperable recurrence there have been some results which might justify a trial.

(5) X-rays and Finsen's light are specially applicable in rodent ulcer, not only because of the excellent cosmetic result, but also because they bring out foci which would not otherwise be apparent. There are cases which will prove intractable, and here it would be wise to first excise and then use the light or rays to complete the cure. This is most valuable, and will probably be more done in future. In superficial forms of inoperable cancer (carcinoma and epithelioma especially) the use of the X-rays does seem to arrest the growth even though it does not cure, and its analgesic effect is always most marked, more so than perhaps any other agent. In deep-seated cancer the results from this treatment have not been satisfactory.

(6) That many inoperable cases have been rendered so by the failure of early operation, which in all forms still remains our best prophylactic.

Prostatic Hypertrophy.

One gets almost wearied of this subject just now, when it is almost impossible to open a surgical journal without reading some article upon it. It seems to me pretty well settled that surgical treatment of some kind forms the only permanent prospect of relief from catheter life with all its accompanying discomforts and risks, and the battle at present is being waged between the advocates of the perineal route on the one hand and of the suprapubic route on the other, in order to reach the gland. Once it is reached, there are almost as many ways of treating the enlargement as there are operators. One shells the gland out of its capsule, though no two quite agree as to what constitutes the capsule. [One would think that Sir Henry Thompson's most careful directions had settled that point at least.] Another operator only excises as much of the prostate as is in his judgment

hypertrophied, and thus frees the urethral obstruction. Still another will treat the enlargement with the actual cautery, applied either through a suprapubic opening or as in Bottini's operation.

A most interesting discussion on this subject took place at the last meeting of the British Medical Association, which was participated in by P. J. Freyer, Prof. Alexander, Sir William MacEwen, Jordan Lloyd, Reginald Harrison and others. It seems as though the suprapubic route to the prostate was rather losing ground and the perineal route becoming more popular as the future operation, though the question is still much debated, and many good men differ on it and differ strongly. The suprapubic operation is the easier, gives a good view of the field of operation, and also gives the operator complete knowledge of the intravesical conditions and their treatment, especially so if any calculus is present. Against it is the fact that you have made an extra opening in the bladder and one which does not give as good drainage as the perineal opening would. Moreover, the advocates of the perineal operation claim they can enucleate the prostate without opening the bladder at all, only the prostatic urethra.

In the November number of the *Annals of Surgery,* Dr. John P. Bryson, of St. Louis, Mo., advocates a sort of combination of suprapubic and perineal operation. He makes a suprapubic incision through the space of Retzius down to the bladder, carefully avoiding the peritoneum. Then, with the fingers of the left hand introduced into the wound, he presses the bladder well down upon the perineum, in which had been made the ordinary perineal incision into the prostate. In this bimanual way, he claims, he can easily with the forefinger of the (right or operating) hand shell out the enlarged prostate through the perineum. Ferguson, of Chicago, pulls down the prostate into the perineal wound with a blunt hook passed into the bladder over the gland, while some Continental operators use a small inflatable rubber ball upon the end of a handle, for the same purpose.

In the December number of the *Annals of Surgery* is a well written and most exhaustive article on the "Pathology of the Enlarged Prostate," by Dr. Crandon, of Boston, which will well repay perusal by anyone interested in this subject.

A Standard of Technique in Surgical Operations.

Dr. Edward Wallace Lee, of New York, makes a plea for this in an article published in the *New York Medical Journal* of November 8, 1902. He points out that surgical literature is full of such expressions as "the ordinary aseptic precautions being taken," "the patient having been prepared in the ordinary way," etc. He declares that these expressions have a different meaning or value for each operator or writer,

and pleads for some definition of these meanings—some fixation of a standard.

While we admit the truth of Dr. Lee's statements and agree with him that his ideal is a good one, we do not see how it can be brought about in the present ceaseless change of operative technique. It appears to us to be too early to begin standardizing in surgical tetchnique, and as the tendency is always towards simplicity we do not stand to lose anything by the delay. The author of the article has himself no practical suggestions to offer and is content to have raised a very interesting question.

Rubber Gloves.

Dr. Robert T. Morris, of New York, has an article on this subject in the *New York Medical Journal* for November 22, 1902. He prefaces his article by the statement that "rubber gloves seem to be at their height of popularity in surgical work in this country, although they are being discarded apparently in Europe, where they received first attention." (?) His main contention against the use of gloves in clean cases is that the operation could be quicker done without them, and therefore the resistance power of the tissues of the patient is lowered, rendering him more susceptible to the action of air-borne bacteria, which will for the same reason have greater chance of access to the tissues. He thinks that the new crops of bacteria which are set free from the deeper layers of skin of the operator's hands as the operation progresses may very safely be left to the care of the best of germicides—the blood serum of the patient. Hence he deprecates frequent washing of the hands while operating unless, of course, they have touched something septic. Speed, and as little as possible, injury to the tissues, are the two great requisites of good modern surgery, and given these we may safely ignore the dangers which rubber gloves are designed mainly to overcome. He freely admits that many cases demand the use of gloves, *e.g.*, infected cases (for the surgeon's sake as well as those he may afterwards touch), diabetic patients, whose blood serum is deficient in germicidal power, and cases of that kind. Many of his conclusions will be denied by good operators, and, while personally I do not use gloves in clean cases, I am not at all ready to say that those who do are in the wrong. In the majority of cases it may well be safer to wear them.

J. M. E.

Otology.

UNDER THE CHARGE OF FRANK BULLER

ALEXANDER..."Histological Study of Tumors of the External Ear." *Archives of Otology, October, 1902.*

GRIMMER. "A Contribution to the Pathology and Diagnosis of Tuberculous Otitis Media." *Ibid, June, 1902.*

Alexander gives the clinical and histological notes of fifteen cases of tumor arising in the rarely visited external ear. Eight of the growths belonged to the connective tissue group, while seven were classed as epithelial tumors. Briefly, the cases were as follows:—

Case 1.—Papilomatous fibroma molle.—A tumor about the size of a pea arising by a *narrow* pedicle behind the tragus of the right ear and the entrance to the auditory canal.

Cases 2, 3.—Cheloids.—One case grew from the vicinity of the scaphoid fossa at the site of an old scar; the other from the usual situation—the lobule which had suppurated as a result of piercing.

Case 4.—Tuberculous granuloma of the lobule.—Consisting of two small knotty growths, one on the lobule, the other on the antitragus of a patient showing definite pulmonary tuberculosis. The origin attributed to suppuration following piercing of the ears eight years previously.

Case 5.—Angioma cavernosum.—A reddish blue growth about the size of a pea with an irregular surface and rather broad pedicle which had developed in a few weeks on the left auricle anterior to the scaphoid fossa in a male æt. 30.,

Cases 6, 7, 8.—Endotheliomata of the lymphatic vessels.—The two cases, accompanied by clinical notes, occurred respectively in a male and female, both 53 years of age.

Cases 9, 10, 11.—Flat-celled carcinomata, occurring respectively in two males æt. 76, and a female æt. 65. Two of these cases began in a blister from which the ulcerated area developed; the other was attributed to frostbite. All originated in the helix, the usual situation, according to Zeroni, for this form of growth, because of degenerative changes at this most exposed portion of the auricle. The tendency to destruction of cartilage was also marked in all three cases.

Cases 12, 13.—Cylinder-celled carcinomata.—One case, in a male æt. 54, began as a warty growth at the meatus following a sero-sanguineous

discharge from the right ear. It gradually involved the whole extent of the external auditory canal in spite of numerous operations, and extending behind the auricle and into the parotid glands ended fatally. The other case, an old lady æt. 70, after having a watery discharge from the left ear for two or three months, developed a small growth in the external auditory canal, and soon after a similar tumor over the mastoid. Removal with the curette was followed three years later by recurrence, but no secondary return of the growth was present at the time of the patient's death, from other causes, five years later.

Cases 14, 15.—Atheromata.—One case consisted of a fluctuating tumor the size of a goose's egg attached to the lobule of the ear in a male æt. 46. The other was a small tumor springing from the upper wall of the auditory canal in a lad of 18 years.

With a view of determining a clearer clinical picture for distinguishing the tuberculous from the non-tuberculous, and also of ascertaining what methods of pathological and bacteriological investigation can be held to establish an indisputable diagnosis during life, Grimmer studied, both clinically and pathologically, a series of nineteen cases in the Royal Infirmary and the Laboratory of the Royal College of Physicians, Edinburgh. The conclusions reached were as follows:—

1. Advanced tuberculous changes may be present in the mucous membrane of the tympanum and of the tympanic membrane itself without producing visible evidence through the external auditory meatus.

2. The membrana propria of the drum head offers marked resistance to tuberculous infiltration, and is only destroyed by a process of erosion. This resistance also accounts for the frequency of multiple perforations in tuberculous cases.

3. Latent tuberculous naso-pharyngeal adenoids and all other latent foci must be excluded before deciding that any case of middle ear tuberculosis was of primary infection.

4. A high percentage, probably 65-70%, of cases of suppurative otitis media with neighbouring bone lesion, in children under five years are tuberculous; in older persons not more than 16% of similar cases are tuberculous.

5. Intraperitoneal inoculation of guinea pigs is a good and reliable method of proving the presence or absence of tuberculosis in granulations from the middle ear. Reliable proofs may also be obtained by examining microscopically such granulations or even an enlarged mastoid gland or naso-pharyngeal adenoids when present.

6. In cases of suppurative otitis media the absence of ear pain, early and extensive destruction of bone, early facial paralysis, multiple per-

forations, pale flabby granulations with caseous points in the meatus about a mastoid sinus, and in the mastoid antrum, and an enlarged mastoid gland, point strongly to the disease being tuberculous.

7. The detection of bare bone with the probe through the meatus, the character of the discharge, facial paralysis, and extensive destruction of bone appearing as a late symptom are of doubtful value in arriving at a diagnosis, while the presence of cholesteatomatous masses is positively opposed to tuberculosis being present.

W. Gordon M. Byers.

Reviews and Notices of Books.

A Practical Medicine Series of Year Books. Comprising ten volumes of the year's progress in medicine and surgery. Vol. vii, Materia Medica and Therapeutics, Preventive Medicine, Climatology and Forensic Medicine.

The article on Materia Medica and Therapeutics is written by Dr. Geo. Butler, who has given us a concise and interesting summary of the year's progress in Therapeutics. In his introduction, he says: "In reading the literature of the past year, it is noticeable that less progress has been made in the line of therapeutic investigation than perhaps in any other branch of medicine. While numberless new remedies have been manufactured, the majority of these are only combinations of old remedies for which credit must be given to the manufacturing pharmacist rather than to the chemist. Real advances in our knowledge of the physiological action of drugs have been few. Therapeutic measures, other than drug medication, such as hydrotherapy, massage, phototherapy, and electricity, have during the past year been more relied upon than formerly. New fields of usefulness have arisen for many of our old and more familiar drugs, such as carbolic acid, cocaine, atropine, etc., and to these more attention has been paid than to the many synthetic or proprietary preparations that appear almost daily and which lack the test of time to prove their value." This small volume as a work of reference for the ensuing year will doubtless prove of value to the general practitioner.

Morphinism and Narcomania from other Drugs. Its Etiology, Treatment and Medico-Legal Relations. By T. D. Crothers, M.D. W. B. Saunders & Co., Philadelphia. Canadian Agents, J. A. Carveth & Co., Toronto, Ont.

Every year the increasing prominence of this psychosis calls for more exact studies and a fuller recognition of the conditions and causes of its existence. The special object of this work has been to group general facts, to outline some of the causes and symptoms common to most cases, and to suggest general methods of treatment and prevention. The writer claims for the volume that it is a practical summary of his clinical experience extending over a quarter of a century in the active treatment and care of narcomaniacs. He has entered a comparatively

untrodden field, for although morphinism has been discussed by the profession for many years, the literature on the subject is still limited and unsatisfactory. The volume opens with a preliminary survey of this new field of psychopathy; then takes up consecutively the etiology, symptomatology, prognosis and termination of each class of case. In regard to the question of the gradual or rapid withdrawal of the drug in a case of morphinism, the writer says: "If the addiction is a newly acquired one in a person previously well and free from neurotic strain, a rapid withdrawal is the most practicable." If the habit is of some standing, the withdrawal must be more gradual. The conditions present are always neurasthenia and anæmia in addition to various functional disorders which are made worse by concealment with drugs and with the narcotism of morphine. It is first necessary to find out the amount of morphine the person takes and so far as practicable correct the digestive disturbances which exist. The next step is to stop the morning dose of morphine and to concentrate the amount given from noon to six in the afternoon. To compensate for the morning dose, baths are given with a stimulating diet containing a considerable amount of hot milk if the stomach will bear it. In a few days, when the system is accustomed to this change, the afternoon dose is reduced by one half, and then as soon as practicable, the time varying according to the condition of the patient, a still further reduction is made. In from ten to fifteen days later the morphine can be entirely abandoned. Then comes the third step of treatment for the withdrawal symptoms. Efforts now must be directed towards diminishing their intensity, particularly that of the insomnia and restlessness. To this end prolonged hot baths, electricity, strychnine nitrate and a careful dietary, are all recommended. We have much pleasure in recommending this volume as a clear, concise and in every way admirable presentation of a difficult subject. *A. D. B.*

System of Physiologic Therapeutics. Vols. 3 and 4.—Climatology, Health Resorts, Mineral Springs. By F. Parks Weber, M.A., M.D., F.R.C.P., with the collaboration for America of Guy Hinsdale, A.M., M.D. In two books:—(1) Principles of Climatotherapy, Ocean Voyages, Mediterranean, European and British Health Resorts. (2) Health Resorts of Africa, Asia, Australasia and America, with chapters on Special Therapeutics. Illustrated with maps. P. Blakiston's Son & Co. Canadian Agents, Chandler & Massey, Ltd., Toronto and Montreal.

The subject of climatology is still somewhat in its infancy; its importance has not yet been fully recognized by the profession. To Sir Herman Weber we are indebted for most of our knowledge of its

possibilities. The present volume is by his son, assisted, especially as regards American health resorts, by Dr. Guy Hinsdale. Necessarily such a work must, to a great extent, be a compilation, but it appears to be accurate and readable and will be found of great value as a work of reference. Its opening chapters on Climato-therapy should be read by all.

Only in recent years are we beginning to appreciate the importance of this means in the treatment of disease. Climate itself is, however, a very unstable agent, the variations of which cannot be foreseen. Fortunately, other agents of a more constant character can be associated with it for the benefit of our patients, such as mental rest, cheerful surroundings, open air life, altered diet, and sometimes the use of mineral waters. In prescribing climate, we have to consider also not only the effects on the patient when he arrives at his journey's end, but also the effects that may arise from the journey itself, and from the patient's removal from home surroundings. It is, therefore, evident that much care and thought must be given to the subject if we would obtain the greatest good for our patients. Haphazard prescriptions of climate are apt to be as valueless, sometimes as dangerous as haphazard prescriptions of drugs. Nevertheless, treatment by climate and in health resorts often succeeds, especially in chronic cases, when ordinary medicinal treatment, and sometimes every kind of treatment at home has failed. To such as are in search of the necessary knowledge to guide them in advising their patients we have much pleasure in recommending these two volumes, which contain not only the latest knowledge in regard to the various places which may be used as health resorts, but much practical advice in making a suitable selection. The volumes are well printed and contain numerous maps, which are of much service in illustrating the text.

A. D. B.

A Laboratory Guide to the Study of Qualitative Analysis. By E. H. S. Bailey, Ph.D., Professor of Chemistry, and Hamilton P. Cady, A.B., Assistant Professor of Chemistry in the University of Kansas. Fourth Edition. 12mo., 235 pages. Published by P. Blakiston's Son & Co., 1901. Price, in cloth, $1.25 net. Canadian Agents, Chandler & Massey, Ltd., Toronto and Montreal.

The aim of the authors has been to produce a book which would enable a student to successfully carry on the work of qualitative analytical chemistry without the constant assistance of an instructor. Every precaution which a considerable experience could suggest has been

taken to guard against sources of error. Nevertheless it is recognized that for the most successful performance of the work, "elbow instruction" is still invaluable. This volume will, however, prove of great assistance to the student.

NOTHNAGEL'S ENCYCLOPÆDIA OF PRACTICAL MEDICINE, American Edition, Vol. II. Variola, Vaccination, Varicella, Cholera, Erysipelas, Whooping Cough and Hay Fever. W. B. Saunders & Co., Philadelphia, 1902. Canadian Agents, J. A. Carveth & Co., Toronto.

For general excellence in the treatment of the subject matters, this volume compares favorably with the first volume of the series. Special mention must be made, however, of the article on Vaccination (including Variolation), by Dr. H. Zimmermann, of Basel. It is safe to say that nowhere can there be found a more lucid and comprehensive presentation of the subject, or a more complete and satisfactory vindication of vaccination as a measure of public health. The article should be in the hands of every practising physician, who will find in it every argument necessary to overcome the prejudice of the most rabid antivaccinationist—if there be any such that are open to reason. The articles on Variola, by Dr. H. Zimmermann; Varicella, by Th. von Jürgensen; Asiatic Cholera and Cholera Nostras, by C. Liebermeister; Erysipelas, by H. Leuhartz; Whooping Cough, by G. Sticker, are all excellent and have been brought up to date by the editor, Sir J. W. Moore, of Dublin. An omission that strikes one in the article on whooping cough is the absence of any discussion on the bacteriology of that disease. Both this article and that on hay fever show great erudition and wide reading of both ancient and modern writers. The latter topic is treated in a controversial way that not only adds to its interest, but may afford not a little amusement to the curious reader.

Vol. III. Diphtheria, Measles, Scarlet Fever and German Measles.

In this, the third volume of the series, the standard of excellence has been fully maintained. The first article, that on diphtheria, is not a translation of the article on the same subject as it appears in the German edition, but an original one from the pen of Dr. William P. Northrup, of New York. This change was necessitated by a prior arrangement of the German author to publish a translation of his article apart from this series. After reading Dr. Northrup's excellent and exhaustive contribution, one may entirely endorse the remark of the editor, that the substitution has entailed no loss to the readers of the volume. Following a short historical summary of the

progress of our knowledge about diphtheria, the etiology, pathology, symptomatology, diagnosis, prognosis and treatment are successively dealt with in thoroughly up-to-date sections. There is no padding. In the section on the morbid anatomy, the important work of Councilman and Mallory has been largely drawn upon. The section on treatment is particularly full, and contains, besides numerous statistical summaries of antitoxin treatment, a number of excellent X-ray photographs, plates drawn from frozen sections and ordinary photographs, illustrating intubation and the feeding of intubated patients. There are also a number of charts and microphotographs of diphtheria and pseudo-diphtheria bacilli, and of lesions in the different organs. An extensive bibliography is found at the end of the artitcle.

Measles, Scarlet Fever and German Measles, by Dr. Theodor von Jürgensen, Professor of Medicine in the University of Türbingen, are preceded by a general introductory article on the exanthemata, by the same writer, dealing with historical considerations on the antiquity of these affections, the question of their possible common origin, co-existence and recurrence and on general prophylaxis. It is not probable that many physicians in the Western Hemisphere would endorse the following statement made by von Kerschensteiner and quoted with approval by von Jürgensen : "Smallpox, scarlatina, and measles are not communicable through the medium of a third person who remains unaffected;" still less the following:—"Intercourse with the family of patients suffering from scarlatina or measles is admissible; the children in such a family may, therefore, unhesitatingly continue their attendance at school, just as physicians in charge of the patients may visit others without misgiving." It is only fair to add that he makes a strong plea against the cooping up of the unaffected children in the same house as the sick ones. But is this the only alternative? In this country kind friends and relatives can usually be found who will harbor the well children in time of need. His remark that teachers, whose family are affected with scarlatina or measles, frequently keep on attending school, reveals a crassness in school administration surprising, if true, in a country like Germany, which we are sure would not be tolerated for a moment in America.

The articles on measles and scarlet fever are elaborate, not to say diffuse and prolix. One feels that a good deal of boiling down and the omission of the minutiæ of individual case-reports would make them more readable. The same may be said of some controversial questions, where the reader's interest flags and the conclusions blinded from the over-elaboration of the argument. The descriptions of the

general symptomatology are admirably objective, a clinical picture in the most literal sense, and the establishment of the length of incubation by unimpeachable astatistics is most satisfactory.

Important additions have been made by the American editor, an adequate description, with coloured plates of Koplik's (or Filaton's) spots, Meunier's sign, and blood examination in measles; and in scarlatina, infection from milk, blood examination, and methods of quarantine and disinfection. In the article on German measles the author takes the stand that it is not an independent disease—a view which is not shared by the American editor. The "fourth disease" is briefly considered in an interpolated paragraph.

THE DEVELOPMENT OF THE HUMAN BODY: A MANUAL OF HUMAN EMBRYOLOGY. By J. PLAYFAIR MCMURRICH, A.M., Ph.D., Professor of Anatomy in the University of Michigan. Pp. 518, with 270 illustrations. Price $3.00. Philadelphia, Blakiston's Son & Co., 1902.

We are glad to welcome this excellent small manual of embryology by one of the most brilliant and well known graduates of the Biological School of Toronto.

It is a serious endeavor to place clearly and in a small compass the main facts of embryology as they bear upon the development of the human body. It begins wisely with a very thorough and well illustrated study of the development of the spermatozoon and of the ovum, followed by what is known concerning the fertilization of the ovum and, after this, takes up in due order the main points in the development of the embryo and the fœtus. The enormous amount of material that has been collected bearing upon these matters and the uncertainty which still exists regarding the interpretation of many of the facts, undoubtedly renders it difficult to write always with clearness, but for the medical student who desires to gain a broad grasp of the principles and the main facts regarding the development of different organs, we are inclined to think that the number of special embryological terms might have been materially reduced and the language somewhat simplified.

Notwithstanding, throughout the book we cannot but feel that Dr. McMurrich writes as an authority and not as a mere scribe and that he has supplied us with a work that will be of the highest value for those who wish to master the admittedly complicated process of evolution of the different organs. He has, in fact, supplied us with a work of very great value for those who do not desire to be embryologists first and foremost, but who require to obtain a broad grasp of the facts of the development of the human organism.

A Text Book on Pathology and Pathological Anatomy. By Dr. Hans Schmaus, of Munich. Translated from the Sixth German Edition by A. E. Thayer, M.D., Instructor in Pathology, Cornell University Medical College, and Edited with Additions by James Ewing, M.D., Professor of Pathology in the same. Pp. 602, with 351 Engravings, including 35 Colored Plates. Lea Bros. & Co., Philadelphia and New York, 1902.

That Professor Schmaus' text book of pathology has already in a few years reached its sixth edition, is a clear indication that it is recognized by the German student as filling a distinct need, and this fact is in itself an adequate excuse for translation. It has filled a place in Germany occupied on this continent by the familiar Green's Pathology, published also, we may add, by Lea Bros. & Co. Although Green's text book has been wonderfully improved of late years and brought up to date, a comparison of the two books shows that this is much fuller and on the whole more authoritative, though the very mass of facts condensed into its six hundred pages renders it, we confess, more difficult reading; as again does the fact that here we deal with a translation, painstaking as that translation would seem to be.

Undoubtedly the ordinary student demands books of this order in which the necessary facts are given in a didactic and compressed form without discussion of principles or of exceptions. We ourselves doubt whether such condensed food does not surely lead to indigestion, but freely confess that that here supplied is excellent of its kind. Add to this that the illustrations as a whole are excellent and, in general, of the proper diagrammatic character. The whole "get up" of the book strikes us as a distinct improvement upon the original, and we are glad to note that Professor Ewing has brought in here and there references to the more important work performed upon this continent of late years.

Treatise on Diseases of the Skin for the Use of Advanced Students and Practitioners. By Henry W. Stelwagon, M.D., Ph.D., Clinical Professor of Dermatology in the Jefferson Medical College and Woman's Medical College, Philadelphia, etc., etc. With 220 illustrations in the text and 26 full-page lithographic and half-tone plates. Philadelphia and London, W. B. Saunders & Company, 1902. Canadian Agents, J. A. Carveth & Co., Toronto. Price, $7.00.

This is a large book of over 1,100 pages, well illustrated, and written in a clear and sufficiently didactic style to be of service to the class

which the author wishes to appeal, students and practitioners. Moreover, recognizing that the great difficulty in most branches of medicine, but perhaps more so in dermatology, lies in diagnosis, Dr. Stelwagon has paid particular attention to this part of his subject and to the symptomatology. Advantage has been taken of the publishers' ownership for America of Mracek's plates from the *Hand-atlases of Diseases of the Skin and Syphilis* to incorporate many of the more useful ones in this work, and the majority of the other illustrations are new, being taken from the author's collection of photographs or from those of his colleagues not hitherto published. The greater part of these are well executed and add much to the value of the work.

The first 130 pages are devoted to general anatomy, symptomatology, pathology, etc., which, though possibly essential to the completeness of a "treatise," we think, might with advantage have been cut down. The classification followed is that of Hebra as originally modified by Croker, a plan much more useful to both student and practitioner than the alphabetical arrangement adopted by many recent authors, as, admitting that it is an imperfect attempt at classification, it groups together diseases allied at least pathologically or etiologically. While the system at present in use by the American Dermatological Association, the alphabetical, serves the purpose of a body of specialists, any attempt to teach students without some system of classification enormously increases the difficulty of the subject to them.

Dr. Stelwagon, in treating lichen ruber reproduces Hebra's own account of the disease, translated by himself, without commenting upon the description, but under pityriasis rubra pilaris he alludes to the controversy regarding the identity of the two diseases, and bases his own belief in their individuality upon the failure of the latter to be influenced by arsenic and its comparative benignity. Certainly the disease described as pityriasis rubra pilaris in the work under review is not lichen ruber as Canadian dermatologists understand it, the statements that it never leads to atrophy of the hairs or produces any constitutional symptoms, alone serve to distinguish it from the graver disease. Lichen scrofulosis is also described along with this group, the author believing that it should be placed among the tuberculoses of the skin, though definite evidence of this by the finding of tubercle bacilli has never been produced. Eczema seborrhoicum is considered at some length, the author remarking that "The acceptance of eczema seborrhoicum as a distinct entity has almost obliterated seborrhœa." For its treatment he recommends sulphur, salicylic acid and resorcin, but makes no mention of the oleate of mercury which has proved so

serviceable in our hands. The articles on scarlatina, measles, and variola are written by W. M. Welch. All the forms of purpura are grouped under the same heading, a short paragraph each being given to peliosis rheumatica, Henoch's purpura and the other less familiar forms. Under the heading "Tuberculosis cutis" are included the varieties ulcerosa, disseminata, verrucosa, scrofuloderma and lupus vulgaris; lupus erythematosus is treated separately, but the author admits that there is strong evidence of its tuberculous origin. The animal and vegetable parasitic diseases receive full attention.

The book, as a whole, will be found very useful to the practitioner whose want of intimacy with skin diseases, except those of the most frequent occurrence, will render the very simple descriptions and minute details of treatment of special value.

PRACTICAL DIAGNOSIS: THE USE OF SYMPTOMS AND PHYSICAL SIGNS IN THE DIAGNOSIS OF DISEASE. Fifth Edition, revised and enlarged. By HOBART AMORY HARE, M.D., B.Sc. Lea Brothers & Co., Philadelphia, 1902.

That this work should run through five editions is sufficient proof of its utility and popularity.

The writer takes up first the manifestations of disease in organs, and secondly, the manifestations of disease by symptoms. The recognition of these conditions, therefore, leads the student to build up a diagnosis, and enables him to recognize well-defined disease types.

An enormous amount of information is conveyed in a very moderate space, and the work has been kept well up-to-date by the introduction of the newer symptoms of disease and the methods of investigation.

The plates and diagrams form an important feature of the book. They leave nothing to be desired either in selection or execution, and many of them are invaluable to the student and physician for ready reference. We may specially mention plates of malaria plasmodium of the cutaneous distribution of the nerves of the spinal segments, and the colour scale for estimating hæmoglobin, as forming useful adjuncts to a work on diagnosis.

The only feature of the book which we would wish to see elaborated are some of the laboratory methods of diagnosis. The technique of analysis of the gastric contents, the quantitative estimation of sugar by Fehling's method and by the saccharometer, and the removal of blood for bacteriological examination are all subjects on which a work on diagnosis may be expected to give full information, and in future editions we hope to see such subjects fully dealt with.

THE PRACTITIONERS' GUIDE. By J. WALTER CARR, M.D. (Lond.), F.R.C.P., T. PICKERING PICK, F.R.C.S., ALBAN H. G. DORAN, F.R.C.S., and ANDREW DUNCAN, M.D., B.S. (Lond.), F.R.C.S., M.R.C.P. Longmans, Green, & Co., London, New York and Bombay, 1902. Canadian Agents, J. A. Carveth & Co., Toronto.

This is a single volume dictionary of medicine intended as a handy reference book to the practitioner, and with the exception of midwifery embracing all subjects likely to be of service to the general practitioner who does not undertake to perform the major surgical operations. The space devoted to each disease, or rather organ, member, or joint, for many entirely different affections are grouped in this way under the same heading, is necessarily brief, with the single exception of Diseases of Women, and many of the symptoms common to a large number of diseases, for example, constipation and convulsions, are treated separately. While feeling that the constant use of works of this description must tend towards satisfying the medical man in general practice with a very superficial knowledge of medicine, pathology admittedly receiving but little notice, there is no question but that the demand exists for them, and the one under review is perhaps as free from defects as any in the market. The amount of space devoted to the different subjects is well proportioned and the publishers' work is excellent; although a large octavo of over 1,100 pages, the book is not cumbersome, the print is clear and distinct, and the paper free from that objectionable gloss which, unless the light be exactly at the proper angle, gives such a disagreeable reflexion to the paper used by many publishers.

CHILDBED NURSING.—WITH NOTES ON INFANT FEEDING. By CHAS. JEWETT, M.D., Professor of Obstetrics, Long Island College Hospital, 5th edition.

This manual was originally prepared for the Training School for Nurses of the Long Island College Hospital, and has been subsequently rewritten and adapted to general use. Its object is not to furnish a text-book, but rather to aid the nurses in remembering the more important practical teachings of hospital training. It contains chapters, not only on childbed nursing, but on the care of the child and on artificial feeding. We have no doubt it will fulfil its purpose and we commend it to the attention of nurses.

TRANSACTIONS OF THE COLLEGE OF PHYSICIANS AND SURGEONS OF PHILADELPHIA. 3rd Series, Vol. 23.

This volume opens with a Memoir of Sir James Paget by Dr. DaCosta, and one of William Pepper by Dr. James Tyson, and contains

also numerous valuable papers read before this very active society. Among the more important are the following: The Surgical Treatment of Ascites due to Cirrhosis of the Liver; on Perforating Ulcer of the Stomach; several papers on Anæsthetics in Heart Disease, and a report of 70 cases of Heat Fever.

The Climate and Baths of Great Britain. Being the Report of a Committee of the Royal Medical and Chirurgical Society of London. Macmillan and Co., Ltd. Vol. II.

The climatology of London, of the central and northern portions of England, together with those of Wales and of Ireland, is described in this volume in a very full manner and will doubtless prove of much service to the profession in England and to all those who are in search of information upon the subject.

Selected Essays and Monographs, Chiefly from English Sources. Braxton Hicks, Bodington, Hodgkin, Paget, Humphrey and Ehlers. With an Obituary Notice of the Society's late Treasurer. New Sydenham Society.

These essays in their present form will prove a valuable addition to any library as a reprint of papers which attracted much attention at the time and which are now out of date.

Society Proceedings.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

Stated Meeting, November 21, 1902.

G. E. Armstrong, President, in the Chair.

Drs. Malcolm Mackay, Fernand Monod, and R. F. Rorke, of Montreal, were elected resident members of the society.

A Case of Hyatid Disease.

Dr. Ridley Mackenzie reported the history of this case, and Dr. F. J. Shepherd the result of the operation. (To be published in the February issue.)

Dr. MacTaggart found the structure of the cyst wall identical with that of an ecchynococcus cyst, and on examining a small amount of the fluid it was seen to contain numerous hooklets and immature worms in various stages. It showed no evidence whatever of a communication with the gall-bladder. This was the first case which has come to operation since his connection with the hospital, although three cases were found at autopsy, two males and one female. A microscopic specimen was exhibited showing the cyst structure and also the immature worms.

Dr. Maude Abbott referred to a case seen some years previously at a clinic in Vienna, in which four small cysts about the size of a pigeon's egg had been passed per rectum, apparently by the common bile duct. There was a tympanitic area below the liver.

Digital Compression for Aneurism.

Dr. F. J. Shepherd exhibited this case, of which he gave the following account.

This man came to hospital in August with a pulsating tumour in the right groin. It had been first noticed three months before, but did not increase or diminish in size. I found an aneurismal tumour with strong pulsation which could be arrested by pressure upon the artery above. I hesitated about the proper procedure in this case, as cutting down upon and tying the common iliac artery might prove very serious, so I decided to wait until the students got back and try compression. I put the patient on treatment, giving him dry diet, and certainly with apparent good results. When the students had returned, I put them on for six-hour shifts for twenty-four hours. At the end of twelve hours the pulsation ceased, and at the end of twenty-four the tumour was a

hard, solid mass. I argued that an attempt to cure the tumour in this way could not do the patient any harm, and it might be successful, while the tying of the common iliac was a risky procedure. We gave each of the men five minutes digital compression, it being found that this was as much as a man could do. There were twelve men in a group, so that each man had six turns in six hours. The pressure was made just above the aneurism, and the patient was given full doses of opium. I may say that I remember as a student helping the late Dr. Fenwick with a similar successful case.

Dr. J. Alex. Hutchison had also taken part in the compression of a case of Dr. Fenwick's, he thought it was in 1883. The man suffered a good deal from cellulitis, but he eventually recovered, and was heard of some years afterwards in good health.

Dr. J. M. Elder was also much interested in the case, as he too had been on the relay of students which assisted in Dr. Fenwick's case. The compression was made over the femoral, and he could quite confirm the fact that five minutes was the length of time one man could act at a time.

Dr. Morphy asked Dr. Shepherd if the opening in the vessels was entirely closed by the clot, or if there was likely still a channel for the blood.

Dr. Shepherd, in reply, thought that there was complete occlusion of the vessel.

A Case of Asthenic Paralysis.

Dr. James Stewart showed this case, of which the following is a brief summary.

The case was the second shown before the society, Dr. Finley having also shown one last year. The patient was a man of 32 years of age, who had first noticed about six months previously some trouble chiefly if not entirely in the muscles of the eyes. Drs. Byers and Birkett had investigated the condition of the eyes and throat. The most interesting symptoms were in connection with the throat and eyes. He had lost in a considerable degree the power of turning his left eye out and of raising the globe of the right eye. There was a marked difference between the two eyes in voluntary movement, and also a considerable degree of ptosis on voluntary movement in the right side. These paralytic conditions were only noticeable when he was examined closely. There was considerable difficulty in swallowing, and the muscles of mastication were also involved. He swallowed the first few mouthfuls very well, but very soon tired, and the difficulty at times was very pronounced. The same was true with regard to the muscles of mastication. Weakness of the upper limbs was demonstrated to the meeting by having the patient raise and

lower his arms as rapidly as possible. After thirty or forty movements there was rapid exhaustion, and the weakness showed itself first in the proximal and afterwards in the peripheral muscles. The same disability, but not to the same extent, was present in the lower limbs. The patient could walk fairly well, but soon tired. This rapid weakening of the limbs on voluntary movement was one of the most characteristic features of the disease. The only other feature of the case was the absence of knee jerks. This weakness of the muscles varied from time to time, hour to hour, and day to day, but had remained unchanged for the past month. After a very short rest the limbs were perfectly restored in strength.

Dr. Birkett stated that he had examined the man's throat carefully, but could find nothing suggestive of sensory or motor disturbance.

Dr. Byers had found the lessened strength in elevation of the right globe was due to the involvement of the inferior oblique muscle.

Dr. Lapthorn Smith asked if there was any ataxia, and also if the symptoms were more aggravated when the patient was in company than when alone. He referred to a lady who had experienced difficulty of swallowing in company, which passed off when alone. After a gynæcological operation, during which she was necessarily kept at rest for some time, the difficulty had disappeared.

Dr. Deeks asked if there was any hereditary history in the case.

Dr. Mills wished to know if there was any evidence of paresis of the unstriped muscle for the appearance of the right eye was very similar to that narrowness of the palpebral fissure which followed section of the cervical sympathetic. He would also ask if there was any evidence of vasomotor disturbance.

Dr. G. G. Campbell said that the eye symptoms were very similar to a case of his own, in which ptosis developed after fatigue. The man was a clerk, and showed the ptosis after a day's work. He had been given iodide of potassium in large doses, as he had had syphilis, but without any improvement of the symptom. After being under observation for five years he developed what was apparently obstruction of the bowel from a tumour in the hypogastric region, and as urine was passing freely, he had not thought of using a catheter. The man had been sent into hospital, and there the passage of a catheter had withdrawn a large quantity of urine and completely relieved the obstruction. The case developed into a well-marked one of locomotor ataxia, and he died of that disease.

Dr. Stewart, in reply, said that in this patient there was neither nasal speech nor regurgitation of fluid by the nose. No involvement of the involuntary muscles had been found, and they were not affected in these cases. He could sympathize with Dr. Campbell in his difficulty of

making a diagnosis, as the cases closely resembled tabes in many cases, but differed in that the weakness in the extremities in tabes was due to peripheral neuritis. In this disease there is no group of muscles that is absolutely functionless, whereas this is not the case in the organic lesions of paralysis. While nothing definite was known regarding the seat of the disease or its nature, the weight of opinion placed it as at the ends of the motor nerves.

Tying the Carotid Artery for Intracranial Hæmorrhage.

Dr. Hill exhibited for Dr. Armstrong a man in whom the common carotid artery had been tied for intracranial hæmorrhage with most satisfactory results.

Dr. James Stewart said the great trouble in these cases was in making a diagnosis. It was remarkable how few cases there were in which one could say definitely that the lesion was certainly due to rupture of the vessel and not possibly to blocking.

Dr. Elder, while he had never tied the common carotid for hæmorrhage like this, had done so four times to arrest hæmorrhage due to traumatism, in which there was danger of death in fracture of the base of the skull. Two of these were hæmorrhages from the internal auditory meatus and two from the vault of the pharynx in addition to hæmorrhage from the external ear. Dr. Stewart of Halifax had reported a case in Toronto in which both carotid arteries had been tied and the patient had recovered. He did not think that cerebral symptoms would arise in cases operated upon for traumatism.

Dr. J. A. Henderson referred to a case in which a man was brought into the hospital after a slight fall in an unconscious condition. Catheter specimens of the urine revealed the presence of sugar, and a diagnosis of diabetes was made, but death resulted, and an autopsy revealed the presence of intracranial cerebral hæmorrhage, which would have been operable.

Dr. Armstrong discussed the means of lowering intracranial pressure through operative procedures.

Dermoid Tumour of the Ovary.

Dr. William Gardner showed a dermoid tumour of the ovary taken from a patient some years past the menopause, who had been admitted to the hospital for femoral hernia and the tumour had been discovered accidentally. On opening the abdomen the tumour had been found easily removable, as it was free from adhesions. This was the interesting point, as it contained the usual wisp of hair, blackened teeth, etc., and fat.

A Case of Habitual Miscarriage.

Drs. J. J. Ross and William Gardner reported this case, which will be published in full later.

THE

Montreal Medical Journal.

A Monthly Record of the Progress of Medical and Surgical Science.

EDITED BY

JAMES STEWART, GEO. E. ARMSTRONG,
A. D. BLACKADER, J. GEORGE ADAMI,
G. GORDON CAMPBELL, WILLIAM GARDNER
FRANK BULLER, F. G. FINLEY,
H. A. LAFLEUR, F. J. SHEPHERD,

WITH THE COLLABORATION OF

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T. J. W. BURGESS, H. S. BIRKETT,

VOL. XXXII. JANUARY, 1903. No. 1.

ATYPICAL FORMS OF THE EXANTHEMATA.

Among the many difficulties which confront the family practitioner there is none, perhaps, more perplexing than that of making a diagnosis in those atypical forms of the exanthemata which lie on the borderland between scarlet fever and German measles. Many cases are met with in which the condition of the throat suggests scarlet fever and a diffuse redness of the skin, seen perhaps only by artificial light, seems to confirm this opinion, and yet the following morning either no trace of an eruption is present, or it has assumed a patchy or punctate appearance not resembling scarlet fever, and one wonders whether the redness of the night before was not merely the flushing of the skin so common in young children with any rise of temperature and disappearing as the temperature falls. How to act under these circumstances is the question. Undoubtedly the safest course, and from many standpoints the only proper one, is to call all doubtful cases scarlet fever and treat them as such and thus avoid the dangers which might result from an error in the other direction. At the same time the inconvenience and expense to which this course must often

put a family unfortunate enough to have such a case in its midst must frequently cause the physician to hesitate before adopting it. Even should there be no further symptoms of disease after the first few days, having once pronounced the case one of scarlet fever, the quarantine must be rigidly enforced for from four to eight weeks, and all the inconvenience and annoyance occasioned thereby the physician cannot help but feel has been caused by what may have been an error in his diagnosis. How anxiously he often looks for the characteristic desquamation which will verify his diagnosis and which happily seems often to follow a light case in which the eruption was not distinctive.

The only way we can see of overcoming the difficulty is by removal of the case from the house, and here we have a very strong argument in favour of a civic hospital conducted so that all classes in the community will have confidence in it. Were it possible to isolate these doubtful cases in a comfortable room free from any danger of receiving infection and under the care of their own family physician, we cannot help feeling that not only the poor, who cannot afford to lose the time, or to afford the expense of a lengthy quarantine, but the well to do of all classes, would be willing to take advantage of it. One of the great objections hitherto urged against sending such cases to a fever hospital is the danger of the diagnosis having been wrong, and the consequent risk of exposing the patient to infection. Another objection is often that, at least in the case of a child, parents feel that no one understands their children like the trusted family physician, and that isolation with no one but a strange nurse and strange physician for a long period of time will be a hardship for the child, and an unnecessary one in a mild case of disease, whatever may be said in favour of a specialist in the severe cases.

We are pleased to learn that at last the difficulties which have so long prevented the erection of a civic hospital in Montreal have been overcome through an arrangement between the civic authorities and the existing hospitals by which the city will pay a sum of money yearly to the Notre Dame Hospital for the care of the French Canadian section, and to a committee from the three English hospitals to perform the same service for their own nationality. In this way the vexed question is settled in a manner which ensures to both nationalities treatment by physicians of their own language and religion.

THE SOCIETY OF AMERICAN BACTERIOLOGISTS.

The following resolution, presented by Dr. Welch at the meeting of the Society of American Bacteriologists in Washington, D.C., December 31, 1902, was adopted by the Society by a rising vote, and the

Secretary was instructed to spread the resolution on the records and to transmit a copy of the resolution to Mrs. Johnston.

We, the members of the Society of American Bacteriologists recognize that by the death of Dr. Wyatt Johnston we have lost one of our most genial, useful, and productive members. We shall miss greatly from our meetings a personality so attractive, so full of enthusiasm and of fruitful suggestion, and so devoted to the interests of sanitary science, of forensic medicine, and of pathology—subjects to which he had made valuable original contributions.

We desire to express to the surviving members of Dr. Johston's family our heartfelt sympathy.

Dr. A. F. Starkey, who has been appointed Strathcona Professor of Hygiene and Preventive Medicine at McGill, in succession to the late Dr. Wyatt Johnston, has had considerable experience in public health administration both in England and in India. In the latter country he has spent two years; in part in Professor Haffkine's laboratory for the production of plague and cholera vaccine at Bombay, in part as sanitary officer in charge of a large district. A graduate of the London University, he undertook his medical course at University College Medical School and Hospital, since which time, apart from active work as a health officer in the north of London, and investigations in Devonshire and elsewhere under the local government board, he has acted as demonstrator of Hygiene at University College.

Beginning with the issue for January, 1903, "The Journal of Cutaneous Diseases" will be under the editorial management of Dr. James C. White and Dr. John T. Bowen of Boston, Dr. James Nevins Hyde of Chicago, Dr. Henry W. Stelwagon of Philadelphia, Dr. Prince A. Morrow, Dr. Edward E. Bronson, Dr. George T. Jackson and Dr. John A. Fordyce of New York.

Dr. A. D. Mewborn of New York will be the acting editor. The editors will take an active interest in the Journal and by their united efforts hope materially to improve the quality of its contents. It is their desire to present a monthly review of all important advances in dermatology and syphilis both in this country and abroad.

The Journal has been the official organ of the American Dermatological Association and will publish, in addition to its transactions, the proceedings of all the local societies throughout the country devoted to this specialty.

NEW BOOKS, ETC., RECEIVED AND NOTED.

W. B. Saunders & Company, Philadelphia and London.

The American Text-book of Obstetrics for practitioners and students. By thirteen American obstetricians. Edited by Richard C. Norris, M.D., and Robert L. Dickinson, M.D., art editor. Second edition, revised, 1902.

Diseases of the Pancreas and their Surgical Treatment. By A. W. Mayo Robson, F.R.C.S., and B. G. A. Moynihan, M.S., 1902.

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BRIEF HISTORICAL SKETCHES OF FAMOUS ANATOMISTS.

Gabriel Fallopino.

BY

A. R. Alguire, '04.

Gabriel Fallopino, who was an Italian anatomist, was born in 1523, at Modena and died in 1563, at the early age of forty. He studied under several professors in Italy and then visited Greece and France. When only twenty-four years of age, he was appointed professor of anatomy at Ferrara, subsequently filling the same position in Paris and finally in Padua.

The fact that even Fallopino did not shrink from accepting the gift of some convicts and then poisoning them—indeed, even when the first experiment failed he tried it again with better success—is characteristic of the age in which he lived. He was a pupil of Vesalius and improved upon and extended his works in many directions.

He instituted accurate investigation upon particular parts of the organ of hearing and of the eye, by which he was able to give fuller information upon the ligementum ciliare, the tunica hyaloidea, the lens, etc. So also in the case of the female genital organs, the oviduct, known as the Fallopian tube, has immortalized his name in anatomical terminology,

Of his numerous discoveries and descriptions we may mention those of the aquaductus vestibuli, the foramen ovale, the lamina spiralis of the cochlea, the chorda tympani, the petrosal and sphenoidal sinuses (he demonstrated the absence of the latter as well as the fact that the fœtal sternum consists of seven bones and the fœtal lower jaw of two bones); of the muscles of the forehead, occiput and tongue, the three scaleni, the oblique abdominalis, the so-called Poupart's ligament, the seminal vesicles, the lymphatic vessels, acoustic and glossopharyngeal nerves, nervous ganglia, etc. He also showed that the membranes of the brain have no part in the origin of nerves.

Fallopino was the author of the well-known maxim, that "the road to surgery leads through anatomy."

Andreas Vesalius.

BY

H. S. Muckleston, M.A.

Andreas Vesalius was born in Brussels on December 31, 1514. The history of earlier members of his family was enough to bring the study of medicine very near to his mind. His great great grandfather, great grandfather and grandfather were all physicians; and his father was an apothecary. He attended the University of Louvain and there showed himself strongly disposed to the study of anatomy by his frequent dissection of small animals. He then went to France, and in Paris continued his studies under Sylvius (Jacques Dubois) and others until his twentieth year. While still in his student days he wrote his book "De Humani Corporis Fabrica," being only eighteen years old at the time. He gave instruction to his fellow students at the age of twenty.

He returned to Louvain from Paris. It was at this time that he possessed himself of his first skeleton by stealing from the gallows the body of a criminal which had been stripped of all soft parts by birds.

Soon afterwards he became an army surgeon, but took up the work of teaching in his twenty-third year, when he was appointed by the Senate of Venice to the professorship of anatomy at Padua. He published his book "De Humani Corporis Fabrica" in 1543, though he had written it some ten or eleven years before. In the same year he was summoned to Belgium to be the chief physician of Charles V., then Emperor of Germany and King of Spain.

During his life at Court in Belgium and in Spain under Charles V. and Philip II., he fell into disfavour with others high in power, and finally left on a pilgrimage to Jerusalem. The reason for this action was avowedly a great offence, for he was charged with opening for post mortem investigation the body of a Spanish lady while life was not yet extinct. Other explanations less favourable to his opponent's good name are advanced.

He was recalled to the University of Padua from Palestine in 1564, and on the voyage was shipwrecked on the island of Zante and died from the effects of this accident.

Vesalius' work reformed the study of anatomy. He opposed the teachings of Galen without fear and thus incurred the hostility of his teacher Sylvius. Galen, for example, denied the existence of marrow in the bones of the head. Vesalius demonstrated its presence. Sylvius advanced the assumption that in the days of Galen the bones of the head were differently constructed. Vesalius refuted Galen's teaching on the existence of a bone in the heart and on the strong

curvature of the bones of the upper arm and thigh. Sylvius defended Galen on the latter point, urging that the straightness of the bones was not a natural condition, but a result of the use of narrow trousers.

Further advances by Vesalius were on the functions of the intercostal muscles, the origin of the inferior vena cava, the non-separation of the bones of the symphysis during parturition.

While he was wrong on many points, for example, the circulatory system and the presence of pores in the septum ventriculorum, still he did much to advance anatomical knowledge. For he was the first to describe the course of the vena azygos, the subclavian vein, the ductus venosus, and added to the knowledge of the bones of the head, the brain, the mediastinum, the stomach, the peritoneum and the omentum.

Named after Vesalius are:—*Foramen Vesalii,* found, but not constant, at the root of the pterygoid process of the sphenoid. It transmits a small vein.

Vesalius' gland. One of the pulmonary and bronchial mucous glands.

Ligament of Vesalius. Poupart's ligament.

Vein of Vesalius. A communication between the pterygoid plexus of veins and the cavernous sinus.

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SMALLPOX AND VACCINATION.*

BY

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Physician to the Civic Hospital, Montreal.

The following are simple remarks on a subject which is at the present time of lively interest to us, and which I desire to study with you.

For over a year smallpox has existed in our community and if we do not have recourse to vaccination, which is the only efficient means of fighting this dreadful disease, it will surely last for a good while yet. In the country, people, as a rule, are not vaccinated, nor do they isolate patients or disinfect houses. And what will be the result? As long as such a state of things exists, we shall have smallpox, and country places will infect cities.

We have to go back as far as the seventh century to find the first cases of smallpox mentioned in the history of medicine, but in the sixteenth century we find that this disease had spread everywhere, and, from that time until now, notwithstanding the efforts made by health authorities to stop the progress of variola, the number of its victims has been exceedingly great. This disease is generally manifested in an epidemic form and it is as such that it has caused the greatest ravages, especially among nations not protected by vaccination.

Variola is a disease having the following characteristics: It is eruptive, febrile and essentially contagious. As a rule persons do not contract smallpox more than once, although we have seen individuals who have had it many times. It can be transmitted from the sick man to the healthy in either of two ways; directly or indirectly. The liquid or pus that comes from the pustules, when put in contact with

* Read before the Montreal Medico-Chirurgical Society, Feb. 6, 1903.

skin deprived of its epidermis infects the body of a healthy individual; this is called the direct contagion. The microbe of variola enclosed in the organic particles which fall from the skin during the period of desquamation is closely connected to this organic debris; it has an extreme vitality and can thus live for years. Owing to the mobility of these particles and their being almost infinitely divisible, the microbe can be carried a great distance and contaminate persons who have never been in contact with those afflicted with smallpox. This is the indirect contagion. There is no spontaneous evolution for variola, nor for any other contagious disease. Variola always comes from an infected individual and the strength and effects of its poison varies according to the susceptibility of person and the nature of the epidemic. Both sexes and every age are apt to catch the disease, only those vaccinated being beyond the reach of this terrible plague. Anything that lowers vitality in the human system can be considered as a predisposing cause.

We have had at the Civic Hospital from October, 1901, to October, 1902, 503 patients affected with smallpox; 270 male and 233 female. Adults, 306, children, 152, and 45 babies, of which two had contracted the disease before their birth. We have had also an old man over eighty years of age and about ten persons of over forty years, a fact that shows that smallpox does not spare old age more than infancy. This epidemic was particularly mild, 58 had a serious attack, 143 an attack of medium intensity and 302 a very slight one. The rate of mortality was 2.7 per cent, yet I have here the temperature charts of very serious attacks contracted from persons having had a mild one, a fact that proves that a mild epidemic such as we have had for over a year is not without its dangers.

Symptoms.—From the first the symptoms show that the disease is in full activity. In variola, fever has a particular character which is very interesting to study. In the beginning there is a slight elevation of temperature,—about one degree—which lasts but a few hours (from 6 to 12) and is not constant. Twenty-four hours after there comes a marked chill or repeated chills, followed by vertigo, a feeling of lassitude and drowsiness, and painful constriction of the throat, nausea, vomiting, lumbar pains and violent headache. By twenty-four hours later, the temperature rises as high as 104°, 105° and even 106°, showing a slight diminution in the morning, but a considerable elevation in the evening. The skin is hot and dry and gives a disagreeable sensation to the one touching the hand of a person affected with smallpox. This disagreeable sensation cannot be well defined, but I call your attention to this fact and if ever you come in contact with a patient having smallpox, you will not only feel it easily but

never forget it. This elevation of temperature falls somewhat towards the second and third day, when the eruption appears. This first elevation of the temperature is undoubtedly due to the efforts made by nature in its struggle to throw off the poisonous germs and the fall of temperature, coinciding with the appearance of the eruption over all the body, is of great importance from a diagnostic point of view. To me this symptom is pathognomonic of variola. On being called in consultation some months ago to one of our principal hospitals, this fact alone gave me the opportunity of making an early diagnosis and of isolating the patient. No other disease has this peculiarity in the temperature. But, unhappily, when we are called to make a diagnosis in this disease this symptom is often wanting, the temperature not having been taken for the three days. Sometimes, although very seldom, an eruption of scarlatiniform appearance takes place, and what may greatly contribute to make one believe that it is true scarlatina, is that the rash lasts but twenty-four hours.

Eruption.—Towards the third day after the starting of the disease the eruption appears with the lowering of the temperature. It is characterized, first, by a papule, a small red nodule, hard to the touch and which gives a sensation of roughness to the finger, as though in contact with sand. These papules grow gradually and towards the third day after their appearance they become vesicles, whose contents are either clear or yellow. This vesicle has a pearly color and is often umbilicated. It is surrounded by an inflamed areola, which is the seat of an intense itching; little by little the matter contained therein is transformed into pus; and, towards the sixth or the seventh day after the appearance of the papule, there is noticed a new elevation of the temperature, which rises from one to two degrees in mild cases and in the more serious cases reaches 104°, 105°, even 106° and 107°. It is the ordinary manifestation of reaction provoked by suppuration. Eight or nine days after the papule is observed the pustule ruptures, and from it escapes a sero-purulent liquid, sometimes tinged with blood. In some places, where the epidermis has become very much thickened by friction, such as the sole of the foot and the palm of the hand, the pustules dry up without breaking. It is then necessary to remove the epidermis and its crusts before discharging the patient, as there would still remain material which might be a source of infection. This eruption is not confined to the skin only, but appears also on the mucous membranes; sometimes the tongue, the palate, the tonsils and the pharynx are all covered with it. The patient coughs very much and can hardly speak, deglutition is most painful and he cannot take any food, a fact that is liable to entail grave complications.

Desquamation.—The pustule having ruptured the pus and the epidermis dry up and form crusts more or less thick and more or less adherent, which fall between the 12th and the 20th day after the appearance of the papule. With the desquamation, convalescence begins, and is more or less prolonged, lasting from ten to thirty days. The first crusts fall, leaving a more or less ulcerated surface on which another crust is formed and which falls again a little later and so on until a new epidermis covers the skin.

I have here before me the temperature chart of a child who came to the hospital with his parents. As may be seen, on the 30th January the temperature rose one degree and became normal the next day. On the 31st, it rose to 102°, a slight diminution occurred on the morning of February 1st, and in the evening it reached 105°; on the evening of the 2nd, it fell to 100°, and on the 3rd day to 99°, when the eruption appeared. The temperature kept about normal until the eighth, when the pustules were formed. On the 8th day the temperature rose again to 101° and declined gradually to normal on the 12th. On the 24th of February, this child, after twenty-six days illness, left the hospital completely cured. It is a typical case of variola in the mild form.

Pathological Anatomy.—The anatomical lesion has its seat in the malpighian body and the more deeply the malpighian body is affected, the more grave is the disease and pronounced the symptoms.

Papule.—Under the influence of the specific microbe of variola, which has not yet been recognized, but which according to present bacteriological knowledge is classified with those of parasitic origin, such as those of carbuncle (charbon), diphtheria, tuberculosis and typhoid fever. This specific germ, it is to be hoped will soon be known. Through the influence, as I have said, of this germ, a space is formed between the nucleus and the protoplasm of the dermic cell, detaching the nucleus. These spaces keep on increasing, until after a time they join together and form cavities. The vessels of the derma dilate and become engorged with blood and a great number of the nuclei are extruded and accumulate around the papillary vessels.

Vesicle.—This is a more profound and marked alteration of the malpighian body; the dermic cells have joined together, leaving only a part of their walls forming tracts which are parts of cells enclosed and separated from one another and which contain the debris of cells, nuclei and sometimes globules of blood, the whole floating in a serous liquid. We have also noted the presence of a very fine granulation that some think to be the microbe of variola, but this opinion has not yet been demonstrated to be true. Such is the seat of infection found in the

middle part of the malpighian body. The upper wall of this seat is formed by the horn-like tissue, the stratum lucidum and one or two rows of the superior cells of the malpighian body. They tend to proliferate and contain many nuclei. This process starting from the centre of the papule extends more and more toward the periphery and in the more advanced periods, the malpighian body is filled with cavities more or less regular and more or less enclosed by thin tissues, but not completely so. As the lesion gradually increases, these spaces are filled with a liquid containing not only globules of pus and epithelial debris, but also a considerable number of germs, especially the streptococcus and staphylococcus. This liquid irritates the derma and tends to make it proliferate and also transforms the cells of the derma into kind of shells, which, when united together, form the reticulum. Thus there are purulent foci formed in the altered malpighian body.

Pustule.—This period gradually succeeds to the preceding one, the pus becomes more and more abundant; the tissues are broken down and destroyed, so that there exists in the centre of the pustule a cavity which laterally communicates with other and smaller cavities. The derma all around the pustule is much infiltrated with leucocytes, which sometimes accumulate to such an extent that the papillary tissues are necrosed by want of nutrition. The white and smooth cicatrices, the indelible marks of smallpox are thus formed.

Period of dessication.—It is characterized by the drying of the contents of the pustule, which is thus transformed into a yellow or brownish mass, more or less round in shape. Sometimes this crust adheres only to the derma, this takes place when the lesions are limited to the superficial tissues of the derma, then the regeneration of epithelium takes place rapidly and the patient is cured without being marked by any cicatrices. The name of varioloid was given to this last manifestation, but it is nevertheless variola and can be transmitted to a healthy individual, whose system is in a condition to develop and multiply the microbes. In some cases, especially in certain epidemics the alterations in the papillary body are more pronounced, the action of the virus on the derma is more intense and causes necrosis of the tissue connected to the vesicle and forms another tissue which will leave a more or less large cicatrix.

Vaccination.—The ancients having noticed that a person did not as a rule contract smallpox more than once in his life, practiced innoculation by using either matter or scabs taken from a patient slightly affected with smallpox, hoping thus to protect the one inoculated

from a more serious attack. This custom seems to have originated with the Chinese who put in the nose of children a powder made with the scabs of an individual having had a milk attack. From China it passed to Constantinople and from there to England. It became popular through an English surgeon named Sutton who was the first to use the lancet, with which he introduced under the skin a small quantity of matter coming from a patient mildly affected with smallpox. This kind of treatment naturally did not always produce the expected results. It happened that individuals thus inoculated had not only a serious attack of the disease, but in some instances the attack proved fatal. These persons, morevover, became a source of infection, spreading smallpox everywhere. The use of such a questionable prophylactic measure was simply to start a fire that would cease only after having consumed everything. As can be surmised, this method met with many opponents who fought it energetically until Jenner demonstrated that the proper means of combatting the disease was vaccination.

Vaccine.—In former times the name vaccine was given to a specific virus contained in the pustules, which are found on different animals, chiefly the horse and the cow. In the case of the horse the papules manifest themselves especially on the mucous membranes of the lips, on the nostrils and the skin of the legs. On the cow it is found almost exclusively on the teats. Vaccine possesses active and virulent properties; when man, the cow or horse is inoculated with it, it produces an eruption similar to the one from which it comes and which has a great analogy to that of smallpox, being, it would seem, but a modified form of that disease. When a human being is inoculated with vaccine it protects him against smallpox for a time of more or less length, according to individual susceptibility. To-day this word vaccine has a much wider signification than it had formerly; we look upon vaccine as an attenuated virus which protects against a disease. We innoculate fowls against hen-cholera, hogs against hog-cholera, and human beings against carbuncle, diphtheria, tetanus and hydrophobia.

The origin of vaccination dates from the year 1796, when Jenner after twenty years of observation and research made known to the world his discoveries concerning smallpox. In 1881, Pasteur in a communication on the attenuated virus of the fowl cholera at the International Congress of London said:—"I have given to the term vaccination a wider meaning and one which I hope will be sanctioned by science as an homage to the merit and the immense services rendered to humanity by one of the greatest men of England." Pasteur obtained virus by cultivating microbes in a certain temperature, thus carbuncle

bacteria when cultivated at 44°, 45° C., undergo considerable changes and their virulence is greatly modified. When cultivated at 42° and 43° C., there is no modification whatever. So that a difference of one to two degrees was sufficient to modify the virulence of carbuncle bacteria. These facts may at first sight seem to have no relation to the subject which engages our attention, but if I have mentioned them, it is because they will help us later on to find an answer to this question: "Where does vaccine come from?" You will then allow me to place before you some other facts which will lead us to the same conclusion. In the spring of 1860, in the neighbourhood of Toulouse where the population was afflicted with an epidemic of smallpox, there suddenly appeared a disease resembling smallpox and which spread among horses. Its symptoms were the following: Starting with fever and anorexia, the popliteal region became enlarged, hot and painful. Towards the third or fourth day the skin was covered with papules and by the end of eight or ten days these papules became pustules and ruptured and a sero-purulent liquid escaped. These pustules dried up and towards the fifteenth day the scabs fell, leaving more or less marked cicatrices. This eruption took place on the mucous membranes of the nostrils and the lips. On April 25, 1860, a man named Laforce took from a horse affected with this disease the matter from one of the pustules, eight days after the eruption, and inoculated a cow with it on the 30th of the same month; the punctures began to redden and on the 3rd of May each puncture had developed into five large pustules, round, unbilicated, and in every way like those of smallpox. On the 4th of May, inoculation was successfully practised on a cow, a child and a horse. On the child the inoculation resulted in a characteristic vaccinal eruption.

In 1863, at Alfort, France, this disease existed among horses, presenting the same symptoms: Fever, pustular eruption, dessication and at the end of three weeks return to a normal condition. A student of the School of Alfort cut his finger while dressing the wounds of a horse affected with that disease. The results were that the wound became tumefied and very painful; three days after there came a general debility, anorexia; three or four days later a vesicular eruption appeared on the hands, the arms, the legs and the face, and tumefaction of the glands of the axilla. This eruption had a striking resemblance to vaccinia, being of a pearly white color, surmounted by an epidermal blister from which escaped a very clear liquid. This disease was probably vaccinia, which had developed on this student with all the symptoms of intensity that it assumes when transmitted from horse to man. A young bull having been inoculated with the virus from those pustules

exhibited a well marked eruption of cow-pox; the virus from the latter animal having been introduced into the system of a child produced a fine vaccinal eruption. Last winter the three horses we had for the service of the smallpox section of the Civic Hospital contracted a disease absolutely identical with the one observed at Toulouse in 1860. The symptoms were the same; a few days later there appeared an eruption, first the vesicles and finally pustules. Towards the 10th day, the pustules ruptured, and sero-purulent matter escaped from the wound, having a strong smell. Crusts were formed which fell the 15th or the 18th day, leaving a well marked cicatrix. The hair never grew again, especially on the pastern.

Variola, horse-pox or cow-pox develop in a natural way in man, the horse or the cow, and are manifested by general and local symptoms, and hardly differ in these species in their intensity. Have these individual diseases belonging to the group of exanthemata a common germ? This question was raised in 1799, by Cunner and later by Turner, Hunter, Coleman, Bouilland, Thiel and Culy. It gave place to lively discussions at the Academy of Medicine of Paris, in 1862, 1863 and 1864. At its meeting of May 27th, 1862, Depaul said: "There is only one and the same morbid germ that acts on the horses and cows and which when inoculated to man produces vaccine, which is for me but a modified and mitigated form of variola." Chauveau and Viennoil held a contrary opinion. Therefore, Depaul defended these theories long before Pasteur had made known his discoveries on the attenuation of virus. Now that we are all acquainted with Pasteur's experiences on the attenuation of the carbuncle virus through heat, we can accept Depaul's opinion and believe in the unity of the morbid principle. If Pasteur can attenuate, *in vitro* such a virus by cultivating it in broth at a temperature of 43° C., why should not this same attenuation take place with the smallpox virus when cultivated in organs whose normal temperature is higher than that which is necessary to modify the character of this microbe? When in contact with the organs of the horse the smallpox microbe is placed in a medium, whose character is different to that in which it generally lives, it very probably undergoes a transformation similar to that of the carbuncle bacteria when cultivated in a temperature of 43° C. The temperature of the horse in a normal condition is one degree higher than that of man. By passing through the cow, horse-pox is once more modified and is much less virulent in man than the horse-pox. The normal temperature of the cow is one degree higher than that of the horse and two degrees higher than that of man. The few facts to which I have called your attention, such as the epidemic of Toulouse, and the ac-

cident that happened to the young student of Alfort, are really of a nature to make us believe that the opinion of Depaul is true.

It is now interesting to study the vaccinal pustule because of the analogy between it and smallpox. The characteristics in both cases are identical. The vaccinal pustule contains leucocytes in granulo-fatty degeneration at the beginning, more abundant in the purulent period; necrosed epithelial cells and multinuclear cells. The fluid, where these different elements are in suspension, varies with the age of the variolic pustule, and, like the plasma, the lymph becomes purulent later on. In former times people vaccinated by using matter taken from the arm of a person affected with smallpox, but this custom occasioned many lamentable accidents that greatly contributed to discredit a method by which humanity was to benefit so much. To avoid the recurrence of such accidents, vaccination from arm to arm is no more practiced, and vaccine matter is taken directly from the cow and inoculated to man. But it is not always an easy matter for people to break off suddenly from an old habit, and there still exists against vaccination much prejudice. It is then our duty to spare no efforts in making known this efficient mode of treatment which recommends itself so highly by the great services it has rendered to humanity.

The first, second and third day after vaccination nothing particular is seen on the vaccinated spot. From the third to the fourth day a red spot which can be felt more than seen, appears at the site of abrasion. It can be easily located by a slight touch of the finger. The fifth day the small pimple that was at first seen becomes more pronounced; the sixth it flattens, enlarges and deepens slightly in the centre, having a white and pearly color. The base is surrounded by a small red areola, very limited, yet, but which extends more and more every day. The seventh and the eighth day the symptoms are the same, but more pronounced. The pustule which is then at its full growth is marked by the usual characteristics. Of a white-nacreous color, it is surrounded by a more or less large circle depressed in its centre; it becomes hard, tumefied and protuberant. The ninth and tenth day these symptoms are still more pronounced, but a most notable change takes place in the surrounding circle, whose red color disappears only when strongly pressed by the finger and extends as far as 9 or 10 lines in every direction. The subjacent parts are obstructed, and this obstruction is proportioned to the intenseness and extent of the areola. The axillary glands are hard and painful. The eleventh day, the vaccinal pustule diminishes and its silver color turns brown; the areola becomes pale and contracted; and, lastly, from the twelfth or the

thirteenth day the pustule dries up and a dark colored crust is formed, which falls between the twentieth and the twenty-fifth day, leaving an indelible cicatrix, whose origin can be easily determined. This cicatrix is either round or oval, deep, embossed, crossed by lines and covered all over by small dark spots. Vaccinal cicatrices do not always correspond in every point to this description; they may vary according to the structure of the skin as it is more or less smooth and delicate, yet this description is that of an ordinary case of vaccinal cicatrix.

The application of vaccine.—It is an operation whose object is to put vaccine in contact with the sub-epidermic tissue. For this purpose a lancet, an ivory point or a needle is generally used. A slight scratch is sufficient, but bleeding must be avoided. This operation, however, small and unimportant as it may seem, must nevertheless be made with great care and cleanliness in order to avoid the accidents that too often occur.

The arm must be well washed with lukewarm water and soap; then rub the part upon which you are to operate with a small amount of alcohol. If an antiseptic is used it is necessary to take off with pure water whatever may have remained on the skin, for it is evident that, however small may be the quantity of antiseptic on the skin, it would surely prevent the efficacy of the vaccine. Since vaccination is no more practised from one arm to another, we use either ivory points or glycerinated tubes of vaccine, which are well-known to you all. Yet it seems that glycerinated vaccine contained in glass tubes hermetically closed is to be preferred as being less apt to be polluted. These tubes must be kept in the dark, for light would affect the lymph. Vaccine must be pure and active, two essential conditions to make a good vaccination. The effect of glycerine is to annihilate foreign germs, which might have come in contact with the lymph. In every civilized country vaccination is accepted and practised as the safest and only means of preserving people from smallpox. Yet there are still sceptics who will express doubts as to its value, but such are eloquently contradicted by statistics. Almost the only objection made against vaccination is that we introduce into the organism an unknown and dangerous germ, which does not always protect against smallpox. It is true that hitherto the principle of vaccine is known only by its effects, but we can be allowed to believe that the virus of vaccine is probably that of smallpox in its attenuated form, protecting against smallpox almost in every case, if not always, and the exceptions are so scarce that it would be futile to enumerate them. It would be more logical to search the reason why on such and such persons vaccine proved ineffective, while

in 999 cases out of a 1000 it has proved successful. It is also said that by vaccinating we are liable to inoculate germs of other diseases. Since vaccination from arm to arm is no longer practised, transmission of syphilis and tuberculosis is out of the question. When called to vaccinate, take every antiseptic precaution that science and prudence teach and command, and you can be sure that no foreign germs will be communicated to the subject operated upon; recommend the child's parents to keep his arm very clean and no danger is to be feared. From having neglected these very simple precautions some physicians have met in their practice with lamentable accidents; but these were due to negligence, and it surely would be absurd to attribute them to vaccine. Vaccination is admitted everywhere; it has proved its efficacity by saving millions of lives; the very few accidents which may have occurred could have been avoided by a little more care and attention. It is also stated that through vaccination you inoculate a lymph coming from an animal and that this lymph may be prejudicial to the health of a human being. But how can such an accusation be made concerning vaccine, when the treatment of diphtheria by anti-diphtheric serum is by every one accepted without the slightest objection.

There only remains now for me to place before you a few facts by which you will be convinced that vaccination is effective. In the province of Westphalia, Germany, the rate of mortality, which had reached 2643 per million of inhabitants, during the thirty-one years preceding the discovery of vaccine, fell from 2643 to 114 for each following year. In Denmark, Sweden, and Austria, the rate of mortality among the inhabitants was considerably decreased. In London, where the victims of smallpox numbered from three to five thousands per million of inhabitants, the rate of mortality at first fell to 304, then to 149, and to 132 in 1855, a date when vaccination had become general. We cannot but be astonished when we think that these results were obtained half a century ago, a time when vaccination was practiced by anyone and with no scientific method. In Ireland when vaccination was not general, 1842 to 1860, the rate of mortality was 1972 in a million per year, but when vaccination became compulsory, this number 1972 fell to 583.

The following statistics published by the Government of Sweden are most interesting :

Pre-vaccinal period, 1774 to 1801. Annual deaths per million, 1973.

Period of non-compulsory vaccination, 1802 to 1816, 473.

Period of compulsory vaccination, 1807 to 1877, 189.

In Scotland where children must be vaccinated during the three

months following their birth, in the winter of 1871-72, the rate of mortality among children under five years of age was 514 per million, whilst during the same winter in Holland, where this protective law does not exist, mortality among children under five years of age was 6122 per million of inhabitants. In England mortality caused by smallpox before the discovery of vaccine reached every year three thousand deaths per million of inhabitants. The average mortality during the terrible epidemic of 1871-72 was 1824 per million in 1871, and 833 in 1872.

The statistics of the Civic Hospital of Montreal, smallpox section, are the following :

Patients admitted to the hospital from the 15th of October, 1901, to the 15th of October, 1902	503
Patients who had never been vaccinated	446
Patients who were vaccinated many years ago, having a bad mark	44
Vaccinated many years previously but bearing a good mark	9
Vaccinated within seven years (accepting the patient's statement as correct)	4

But because these four last mentioned contracted smallpox, are we to conclude that vaccination is of no use ? It would be absurd to come to such a conclusion. We must be more serious, for anyone contending that vaccination is useless, shows thereby a narrow-minded disposition and denies the existence of evident facts.

Of persons exposed to infection but successfully vaccinated before entering into the hospital, there numbered forty-four (44), and they did not contract the disease. It would take too much time for me to quote here all the statistics which have been published on different occasions, showing the value of vaccination. But those already placed before you are sufficient to prove beyond any doubt its unquestionable efficiency. Some persons, with no doubt good intentions, are strongly opposed to compulsory vaccination, arguing that it is an attempt made against individual freedom. There is only one answer to these arguments. Those who in exchange for the advantages society gives them, refuse at the same time to fulfil the most elementary and necessary duties for the protection and welfare of the community at large, have only one thing to do, and that is to find a far and solitary island where, as new Robinson Crusoes, they can do as they like. The liberty of spreading dangerous diseases is one of those prerogatives that common sense forbids. There is no disease more contagious than

smallpox, and citizens cannot reasonably oppose such a by-law, intended to ensure protection against this terrible plague.

I believe it is our duty to spare no efforts in making our legislators understand how grave is the responsibility they assume by not obliging people to get vaccinated. I have heard it often said that the duty of a legislator is not to impose a law, forcing those who do not want to be vaccinated, but on the other hand, it is certainly the duty of every intelligent and honest legislator to protect against smallpox the other citizens who form over three-fourths of the population of our country, and the only way of reaching this end is to make vaccination compulsory.

CASE REPORTS.

BY

JAMES BELL, M.D.,

Professor of Clinical Surgery, McGill University ; Surgeon to the Royal Victoria Hospital, Montreal, etc., etc.

Hair-Ball in the Stomach.

H. Carr, æt. 12, was admitted to the Royal Victoria Hospital on November 13th, 1902, with a tumor in the epigastrium and complaining of vomiting and diarrhœa. She had been in good health until January 1st, 1901, when she was seized with an attack of vomiting and diarrhœa, which persisted rather badly for about 10 days, and continued more or less for three months. She also complained of some pain in lower part of abdomen. The vomiting had no relation to meals and while the vomitus often contained food particles, it was mainly frothy mucus. By the 1st of May she returned to school and continued until May, 1902, during which time she had fair health with occasional vomiting and more or less persistent diarrhœa. In May last, she was obliged to leave school with a more than ordinary severe attack of vomiting and diarrhœa, when a mass was felt in the abdomen and thought to be an abscess in the left lobe of the liver. During the summer, the symptoms persisted more or less although she was able to go about. She was very irregular about her food, very fastidious, craving one thing at one time and another at another time, and taking only small quantities at any time.

On admission to hospital, she was a slightly built child, weight 49 lbs., with a normal temperature, pulse, 144. A mass could be felt in the epigastrium occupying the position which could be definitely outlined as the stomach extending up into the cardiac region and disappearing in the neighbourhood of the pylorus. It was painless, very hard to the feel, and a probable diagnosis of hair-ball in the stomach was easily made. On the 17th of November, the abdomen was opened in the mid-line from the ensiform cartilage to the umbilicus and the mass was found to be, as suspected, within the stomach. The stomach, however, could not be delivered on account of the extension of the mass upwards into the cardiac region and downwards into the pyloric; the wound was packed off and an incision about 4 in. in length made along the anterior surface of the stomach, midway between the lesser and greater curvatures. The pyloric prolongation was hooked up with the finger and the mass drawn out end-wise and easily delivered. A small loose mass of hair was detached from the pyloric end and picked out with the forceps. The stomach wound was closed in the ordinary way and the abdominal wound closed without damage.

She has since continued to make excellent progress towards recovery although the gastro-enteritis from which she had suffered for two years still continues, making feeding somewhat difficult, especially on account of the diarrhœa. The child is now craving for food, very hungry and the only difficulty about feeding her is on account of the loose bowel movements.

On enquiry into her past history, her mother, who is a very intelligent woman, tells us that the child has always been bright mentally, has done fully as well at school as other children of her age and that at about three years of age it was noticed she had a habit of breaking her hair with the fingers, although she was not positive that she put it into her mouth. Various expedients were tried to stop this, such as the putting on of gloves and mitts which were tied on at the wrists; finally these were abandoned as it was thought the habit had been overcome and nothing of this has been noticed for the last two or three years.

There are several extraordinary features about this case,—first of all, that a child at the age of 12 years could have been able to pick off all this hair and introduce it into her stomach; and secondly, that it should remain there for so long without producing any definite symptoms, and finally, that this could have been done without its being discovered by an intelligent mother. A further report on this case will be made later on.

Three Genito-Urinary Conditions.

S. Blakely, æt. 32, was admitted to the Royal Victoria Hospital 6th November, complaining of tight stricture of the urethra. He had turbid urine, which also contained blood, and suffered from crampy pains in the lower part of the abdomen. He was in perfect health until two and a half years ago, when he began to suffer from frequent micturition, especially at night. His urine became turbid with a deposit of reddish sediment. During the following winter blood was observed in the urine very frequently and this has increased in quantity and frequency ever since. Eight months ago he jarred himself by falling upon his feet and soon after this the left testicle swelled and in about a week broke and discharged yellowish pus, this continued about six months.

On examination, the remains of two or three sinuses were found in the left testicle, the left epididymus slightly enlarged, very hard and tense, the vas deferens enlarged and hard, left seminal vesicle enlarged and nodular, prostate nodular but not enlarged. Urine slightly turbid, reddish-brown color, contains a good deal of albumin, no sugar and neither tubercle bacilli nor gonococci. He most emphatically denies ever having had gonorrhœa. He was a married man with four children.

On the 18th of November, a filiform guide was introduced and an

internal urethrotomy with dilatation up to No. 28 F. was done. There were no bad symptoms following the urethrotomy, urine was passed freely and in large quantities. On the 19th he complained of weakness in the movements of the right wrist and hand; on the 20th weakness of both hands was complained of, and at midnight he died suddenly—probably uræmia. There was no tubercular heredity and no lesion discoverable to account for the brachial plexus paralysis. Clinically the case was distinctly one of uro-genital tuberculosis and there were no evidences of any lesion of the nerve centres.

Stephen Guest, æt. 38, admitted to the Royal Victoria Hospital on the 4th of October, 1898, with stone in the bladder. His history was as follows:—On the 14th of January, 1894, he was taken ill with what was diagnosed as grippe, characterized by pains in the legs and body and general malaise. Next day he had very severe pain in the small of the back, and was then told by his doctor that he had inflammation of the kidneys. Three days after the onset of this attack he was unable to pass his urine for about 12 hours when it was drawn off by his doctor, about a teacupful of dark red urine, as he describes it, the redness being due, he thinks to blood. The catheter passed easily and about 12 hours later he passed about half a teacupful of urine colored with bright red blood. From this time till admission to hospital he had drawn off all his urine by catheter, being unable to evacuate urine spontaneously.

He was a poorly nourished man, apparently somewhat weak-minded, had a distinct tubercular history on the maternal side. On the 13th of October a large oval stone, an inch and a half in diameter was removed by suprapubic cystotomy. On the 5th of December he was discharged with his wound closed and passing his urine spontaneously.

He was readmitted on November 6th, 1902. After leaving hospital in December, 1898, he remained in good health and passed all urine spontaneously for about six months, then had to use the catheter occasionally, sometimes once a week, sometimes every day for a time until about a year and nine months ago, when it was used habitually. Fifteen months ago he took to bed complaining of weakness, pain and difficulty with his urine and has remained in bed ever since. About a year ago the suprapubic wound reopened and since that time most of the urine has passed away through this fistula; on two occasions it closed over externally for a short period, but soon reopened.

On admission in November, 1902, his weight had fallen from 130 to 90 lbs., his body was bent, his knees flexed and he was greatly emaciated. It was found impossible to introduce any instrument

through the urethra on account of blockage of the urethral orifice by a large stone, this could also be felt with the probe through the suprapublic fistula. It was also quite impossible to collect any urine for examination, which all dribbled away through the wound.

On the 10th of November, the patient was anæsthetized with ether, the suprapubic incision enlarged vertically and transversely at the lower extremity to some extent and a large phosphatic stone broken up and removed in fragments, weighing 42 grammes. The bladder was simply filled with the mass of stone formation. The urine flowed freely and there was no lack of secretion, but the patient sank, became delirious and died uræmic at 8.35 p.m., November 12.

This is a very extraordinary history, as it will be observed that a young man in perfect health was taken suddenly ill with an acute affection diagnosed as grippe at a time when he had never had any urinary symptoms whatever, and that from that time was unable to evacuate his bladder normally. The stone formation was evidently secondary to this acute condition, which was probably some affection of the brain or spinal cord.

Adolph Perras, æt. 28, was admitted to the Royal Victoria Hospital September 10th, 1902, complaining of bladder trouble and pain in the right side of back. He dated his trouble to an attack of gonorrhœa contracted three years ago. Frequency of micturition began about two years ago and soon became very severe. Five months from beginning of this symptom, he was unable to retain his urine at all and was obliged to give up his work altogether.

On admission he was found to micturate about every 10 to 20 minutes. Urine cloudy with slaty, grey sediment, containing pus, albumin, but no sugar, tubercle bacilli or gonococci. A large tender fluctuating mass was discovered in the right loin (evidently the right kidney), which varied in size from time to time. On the 22nd of September this mass was exposed by an oblique incision in the right loin and the kidney was found enlarged and very tense and very adherent. It was incised and a large quantity of thick, creamy pus evacuated. On exploration, it was found to contain a number of cavities which were opened into one another. The opening of the ureter could not be discovered by exploration from the pelvis of the kidney. A drainage tube was inserted into the kidney wound and the loin packed.

He rallied well from the operation, but did not make any progress. Vomiting began at the end of 24 hours and continued; the patient dying at 9.30 on the 25th.

A CASE OF PERFORATING TYPHOID ULCER, OPERATION: RECOVERY.*

BY

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H. J. L., clerk, aged 30, was referred to my clinic in the Montreal General Hospital by Dr. Chas. C. Gurd, on September 14, 1902, with evidences of a general peritonitis, which had come on suddenly some hours before admission to hospital. I am much indebted to Dr. Gurd for the carefully prepared notes of the condition of the patient prior to his admission to hospital, as it was largely on these data that I founded my diagnosis of a perforating typhoid ulcer.

History of the case before admission. Patient had been feeling unwell since September 6th; tired, no appetite and dull headache, but kept at work. He had to stop work (storeman) on September 10th, owing chiefly to headache and weakness. On September 12th, Dr. Gurd saw him, at which time he complained most of severe occipital headache and anorexia. Pulse, 88; temperature, 102.4° F. Beyond a peculiar feverish odour to the breath nothing was noted to account for the fever.

Seven years previously the patient had had typhoid fever, being for fourteen weeks in the Royal Victoria Hospital. Patient passed a restless night though he had some phenacetin and the next morning (13th) his temperature was 100.4°, pulse, 84. Patient was very carefully re-examined by Dr. Gurd, but no cause for the fever was discoverable. That same evening the temperature rose to 103° and the pulse was 86; headache more severe. The bowels moved once (constipated) after calomel triturates. He took milk well. The patient had an excellent night and awoke on the morning of the 14th feeling much better; at 8 a.m. he was seized with severe abdominal pain, rigors and vomiting. Temperature, 104.4°, pulse, 90; abdomen suddenly became rigid and absence of abdominal respiratory movements was noted. At 2 p.m., temperature, 104°; pulse, 96, abdominal rigidity, tenderness and distension more marked. Had vomited four or five times, but not since 10 a.m.; tongue moist and furred.

Condition on admission. Patient was sent to hospital at 4 p.m., and on admission, pulse, 100, regular and of fair volume, temperature,

* Read before the Montreal Medico-Chirurgical Society, January 2, 1903.

104°; abdomen distended, rigid, face anxious, no rose spots to be seen. I examined the patient, and from the history in conjunction with the sudden onset of the acute peritonitis, I diagnosed typhoid perforation and advised immediate operation, which was carried out at 6.30 that same afternoon.

Operation. I made the lateral incision as for an appendectomy and found a general peritonitis with no walling off, and free pus and fæces in the abdominal cavity. The appendix was examined and found of much the same appearance as other portions of the bowel, *viz.*, congested and swollen, dark red, with patches of adherent lymph. About ten inches from the cæcum was a definite, punched-out perforation in the ileum, about the size of the tip of the little finger and on the border opposite the mesenteric attachment. Fæces and gas were escaping from this perforation. The opening was closed with a continuous suture of fine silk, and a second layer of Czerny-Lembert sutures of catgut infolding the sutured perforation. Other perforations were looked for, but none found, nor could I find any evidences of other intestinal ulceration, though the intense peritoneal inflammation present made it easy to overlook such a condition, even were it present. The abdomen was flushed out and two drainage tubes left in, one up towards the liver and the other down into the pelvis. The abdominal wound was closed in layers in the usual manner.

The patient rallied well from the operation and was given nutritive enemata with brandy every four hours. The abdomen was pretty tense and no flatus passed until the evening of the following day, when he had a small diarrhœa stool and passed some flatus. As he had considerable gastric distress and vomiting, the morning after the operation his stomach was washed out and one ounce of magnesium sulphate dissolved in four ounces of warm water thrown into the stomach. This produced full catharsis in the afternoon, and after the bowels moved he convalesced rapidly and feeding by mouth replaced the nutritive enemata on the fourth day. The fever only once (on the fourth day) went above 101°, but promptly yielded to tepid sponging and coming down to normal on the tenth day after operation, remained normal or nearly so. The rubber tubes were removed on the fourth day and replaced by small gauze drains. Patient left the hospital within a month of admission, resumed work on November 3rd, and has since been at work as usual.

The pathological aspects of this case are of some interest. Blood tests were repeatedly made and gave a negative Widal reaction. Cultures taken from the peritoneal discharges gave us only mixed infection,

B. colon predominating, but no typhoid bacilli; so that the clinical diagnosis is not borne out by the pathological tests. However, as a number of cases are on record of well-marked typhoid fever where the Widal reaction was not present or only temporarily so, and as here we had ocular evidences of a typical perforating typhoid ulcer, I do not hesitate to place this case in the happily increasing category of a recovery after operation for perforating typhoid fever.

Points of interest in the case.

(1) A second attack of typhoid fever.

(2) Perforation occurring in a practically ambulatory case. (I have seen one such case before in the Montreal General Hospital).

(3) The failure of the Widal reaction, or at least its rapid disappearance. Was it modified by the previous attack? Not likely.

(4) The comparatively low range of temperature after operation and the speedy convalescence. Does opening the abdomen affect favourably the course of typhoid fever analagous to a similar procedure in tuberculous peritonitis? Sometimes in cases where the abdomen has been opened as the result of a mistaken diagnosis of typhoid perforation, we do notice that the fever appears to run a less violent course, and all the previous distressing symptoms quickly disappear. *Post hoc*, but not necessarily *propter hoc* is all that can at present be said; but not even a sufficient number of instances of *post hoc*.

A CASE OF HABITUAL MISCARRIAGE.

BY

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The term "habitual miscarriage" as used in this case is intended to mean the habitual expulsion of the uterine contents after viability. Some writers prefer the name "habitual abortion" and include expulsions up to the twenty-eighth week; in either case the direct result is fœtal death or uterine contraction.

The causes which result in fœtal death or uterine contraction, according to Priestley, who gave a very exhaustive course of lectures on the subject in 1887, are those referable (1) to the father, (2) mother, and (3) fœtus. These may be predisposing or exciting. Exciting causes act quietly, or more directly on the uterus or ovum, *e.g*, blows, falls, contusions, lifting, sea bathing, stretching of arms and running of a sewing machine. Many of these causes are not active save in connection with some constitutional predisposition.

Father.—Those referable to the father are syphilis, which is the most common and may produce disease in the ovum without infecting the mother, and, more rarely, youth, old age, feebleness and debauchery.

Mother.—Predisposition on the part of the mother to miscarry purely through habit as recently thought and I think conscientiously taught, is giving place to the idea that it is due to the continuance of the original constitutional cause. Tuberculosis and syphilis, on account of lowering the vitality of the mother, cause disease of the placenta and malnutrition of the ovum. The latter is the more frequent cause of recurrent abortions. The high temperature of acute disease causes disturbance of the uterine contents by toxic action on the fœtus through the placenta, possibly by creating a tendency to placental hæmorrhage. Diseases of the heart and kidneys may destroy the fœtus by passive congestion of the placenta. Excess of carbonic acid gas, lead poisoning, convulsive seizures of eclampsia and epilepsy, vomiting or violent coughing, fright and anxiety, are all factors towards evacuation of the uterine contents. Hot sitz and foot baths, by causing disturbance of the pelvic blood vessels, local conditions of endometritis and subinvolution, acute and chronic inflammatory diseases of the uterus and appendages,

* Read before the Montreal Medico-Chirurgical Society, November 21, 1902.

as well as tumours, adhesions and malpositions, associated with some simple exciting cause, might tend to cause uterine contraction sufficiently to evacuate its contents.

Fœtal.—Knotting and shortness of the cord, syphilitic disease of the membranes and placenta, cystic degeneration of the chorionic villi and abnormal relations of the placenta, are frequent causes in the fœtus. Most frequenily, and what I think we have to deal with in this particular case, is degeneration of the placenta, or placental apoplexy, as described by Sir James Y. Simpson in his "Memoirs on Congestion and Inflammation of the Placenta." According to him congestion is a forerunner of apoplexy and consists of an extraordinary accumulation of blood in the spongy tissue of the placenta. This only requires a slight exciting cause to push it to a degree further, causing rupture of the vascular coats and escape of blood into the parenchyma or on to the maternal surface of the organ. He then describes the changes which take place in the extravasated blood, and the effect upon the placental structure. If several of these changes take place on the face of the placenta it interferes with the nutrition of the fœtus, with consequent death and subsequent expulsion.

If one is able to exclude all possible causes except placental apoplexy, much can be done to tide a pathological condition to a successful physiological issue and probably bring, as we did in my case, much happiness and comfort to an anxious household. I am indebted to Drs. Gardner and Chipman for the successful issue of the present case. Dr. Gardner on one occasion casually asked me if I had ever met a condition where there was premature death of the fœtus in utero in advanced pregnancy, and mentioned a course of treatment that might be of benefit. Suddenly recalling this case I promised to give him an opportunity to try the treatment the next time she became pregnant. A month or so after this the patient's husband came to me, stating that his wife was again pregnant about five months and close on the time she usually miscarried, and begged of me to do my utmost to save this child. I immediately advised Dr. Gardner who took her into the Royal Victoria Hospital, and through the kindness of Dr. Chipman in Dr. Gardner's absence, careful observations were made and notes taken of the case.

Mrs. F., aged 30 years, married at 21. Menses commenced at 13 years, regular every 30 days, lasting three to four days, normal until marriage.

Family history negative.

Appetite and digestion good, urine normal. Within the past nine

years has had ten miscarriages, child still-born in each case, dying usually from two to three days before each birth. The time she carried the children varied.

The first was carried only four months, not viable; second carried almost nine months, longest ; third carried seven months; fourth, eight months; fifth had been carried five months when the mother developed pneumonia and was taken to the Montreal General Hospital, and miscarried again two days after her return home. She returned to the hospital suffering from endo-metritis and was curetted by Dr. Lockhart. The sixth one was carried six months, and the mother had right-sided paralysis or numbness while carrying it. The eighth was carried seven months and she had a very severe antepartum hæmorrhage. The ninth was carried six months, and the tenth seven months.

The patient became pregnant with the eleventh child in November, 1901, and was admitted to the Royal Victoria Hospital on April 11th, 1902, remaining there until August 3rd, 1902, when she was discharged. On her return home I kept her in bed and under observation until 11th of the month, when I delivered her of a full term, healthy, male child weighing 4½ to 5 pounds. It might be stated that she always became pregnant again in from two to four months after her previous miscarriage. The fœtal heart was first heard on May 6th by phonendoscope.

Labour commenced at 10 p. m. August 10th, and terminated at 1 p.m. August 11th. The pains were short and sharp; the liquor amnii was grumous, not copious and of a very offensive odour.

Placenta was small, about the size of an ordinary man's hand, with about a third or more degenerated. She made an uneventful recovery and got up on the tenth day.

Treatment, while in the hospital, was rest and careful diet. Three grains of potassium chlorate and fifteen minums of the tincture of iron were given three times a day after meals, the chlorate of potash being increased up to eight grains at the time of discharge. Strychnine sulphate, grain 1/40, was given three times daily as a tonic. Constipation, which was obstinate, was overcome by aromatic cascara and occasional enemata.

This case seems interesting, not so much on account of the rarity of the condition, as on account of the rarity of obtaining a successful result. As far back as fifty years ago, Sir James Y. Simpson reported some successful cases and advocated the use of potassium chlorate, claiming that it gave up oxygen freely to the blood, which compensated for the loss of placental area.

In 1887, Dr. W. C. Priestley gave an exhaustive description of the etiology and pathology of intra-uterine morbid conditions, and endorsed Sir James Y. Simpson's medical treatment.

In October, 1902, in the *British Medical Journal*, Dr. Robert Jardine, of Glasgow University, reported three cases, one very closely resembling our own, with thirteen miscarriages. The first five were normal, the 6th, 7th, 12th and 13th, where no medicinal treatment was given, all miscarried. The 8th, 9th, 10th and 11th, where potassium chlorate was given, were brought to a successful issue. He does not altogether agree with Sir James Simpson that the potassium chlorate gives up oxygen to the blood, but thinks that it has some specific action on the endometrium. What this is he does not say.

CLINICAL NOTES ON A CASE OF LANDRY'S PARALYSIS.

BY

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W. L. G., male, aged 22 years, English Canadian, laborer, unmarried.

Dec. 10, 1902, (eleven days before death), complained of weakness of right arm and right leg.

Past History:—Patient has had an enlarged thyroid since infancy, which has been considerably reduced in size for the last six months, and is said to have been reduced by taking some patent sarsaparilla preparation.

He was accidentally injured three years ago through the explosion of a cartridge, severely burning his face and eyes with powder. Afterwards he was subjected to a prolonged operation under chloroform for the removal of the burnt powder from the cornea. He failed in a business venture about four months ago and has been worrying a great deal and drinking considerably, mostly beer, since that time.

Hereditary Influences:—Paternal grandmother died of cancer. Mother and mother's family highly neurotic.

Present Illness:—He first felt a weakness of the right ankle and right forearm and hand about a week ago, but after resting for a day or two it disappeared, to come back again after hauling cordwood all day in a cold rain two or three days ago, and it has been growing worse since.

Present Condition:—Patient is a robust, rugged laborer. General nutrition good and muscles well developed. Walks with a peculiar awkward gait. Has a short neck and his thyroid gland is somewhat enlarged. Cerebral and mental functions normal; intelligence good and sleeps well.

A marked weakness of the right forearm and hand and right leg as compared with the left is present. There is inability to completely close the right hand; the extensors of the wrist and flexors of the ankle are more palsied than the opposing muscles, thus giving a partial wrist-drop and foot-drop on the right side. Nutrition and tone of the affected muscles is unchanged; there is no inco-ordination. Muscular sense normal. Reflexes normal. No pain, numbness, tingling, or other abnormal subjective sensation is present now, but he says that he did have some tingling sensations in the right foot and hand at the beginning, some days ago.

Sensation is unchanged; special senses normal. Pupils react to light and to accommodation. Appetite and digestion good; temperature, pulse and respiration normal.

Dec. 23, 1902:—Weakness of the right arm and leg is more marked. Now walks with a cane with a *steppage gait*. Right patella reflex considerably exaggerated; other reflex normal.

Dec. 24th:—Weakness of the right arm and leg increased, with some weakness of the left leg as well. Custaneous reflexes slightly exaggerated on the right side, especially those of the right foot. Both patellary reflexes increased, the right one being very much exaggerated. Ankle clonus can be obtained on the right side. Bladder and rectum acting all right. No subjective sensations; ordinary sense and muscular sense unchanged.

Dec. 25, morning:—Walked about the room in the morning with the help of a cane. Left leg weaker than yesterday and left patellary reflex more exaggerated. Took longer than usual this morning to void urine. Was carried down stairs and ate a Christmas dinner at the table. Soon after dinner his temperature was under 97° F., and pulse about 45 per minute.

Evening, 8 p.m.:—Voluntary power. The muscles of the trunk are involved, especially those of the right side, which are much weaker than normal. He is able to move the legs and right arm only slightly in bed. The left arm and the muscles of the neck are not affected.

Reflexes. The cutaneous reflexes over the paralyzed limbs are slightly increased and ankle clonus can easily be obtained at both ankles. There is also exaggerated tendon reflex of the right arm, and when the muscles of the paralyzed limbs are massaged, there is involuntary tonic contraction causing involuntary movements of the limb.

There is dribbling of urine without power to void it voluntarily. There was no stool to-day. No sensory disturbance or change in the special senses.

Dec. 26th:—Voluntary power. The left arm is slightly weaker than normal to-day and the muscles of the trunk are more affected than yesterday. There is also slight paresis of the lower part of the right side of the face.

Reflexes. The cutaneous reflexes and posterior pharyngeal reflex are normal. Cremasteric reflex normal. Patellary reflexes are present, but very slight. There is no ankle clonus to be obtained to-day. The spastic condition of the legs noted yesterday has passed off.

Passing urine involuntarily; catheterized and obtained about a pint

of normal urine. Constipation, not affected by purgatives, but a good stool obtained by enema.

Digestion impaired. No sensory disturbance or change in sensation. No change in the special senses. Complained to-day of a cold in the head and pain in the chest.

Heart and lungs normal; temperature and respiration normal, pulse strong and full between 60 and 70 per minute.

Dec. 27th:—Voluntary power. Condition of the legs and right arm unchanged, can move them very slightly in bed by a strong effort. Left arm weaker than yesterday and only able to move it slightly. No power to move the feet and right hand and only able to move the left hand very slightly. Paresis of the facial muscles on the right side noticed yesterday has completely disappeared. Muscles of the head and neck and the muscles of deglutition and articulation seem to be the only ones unaffected.

Reflexes the same as yesterday. When the muscles of the arms are massaged, there is involuntary tonic contraction with movement. This muscular irritability has passed off from the muscles of the legs.

Patient begins to pass urine involuntarily about ten hours after catheterization. The urine is normal and the bladder contains about a pint when catheterized. No sensory disturbance. Cerebral functions normal; no change in special senses. Temperature and pulse normal, respiration slightly accelerated.

Dec. 28th:—The only change noted is that the left hand is completely paralyzed and it could be moved slightly yesterday.

Dec. 29th:—Voluntary power. Complete loss of power over all voluntary muscles except those of the head and neck. Muscles of deglutition and articulation not affected.

All reflexes of right leg disappeared, and those of other paralyzed limbs diminished. Penis became erect while withdrawing the catheter to-day. This has not occurred before. He is passing flatus involuntarily. There is diminished sensibility of the skin of the right leg.

Respirations are more accelerated; temperature and pulse normal.

Dec. 30th:—There is loss of all reflexes of the skin and of the deep reflexes of the limbs and trunk below the neck. Muscular sense is present. There is no paralysis of the face nor of the muscles of deglutition or articulation. The penis became erect while passing the catheter. Passing flatus and fæces involuntarily. No perceptible wasting of muscles or loss of tone.

No pain or other subjective sensations. Complete loss of sensation

in skin over the limbs and body below the neck. Laboured breathing, about 50 to the minute, with mucus in the throat, which he is unable to expectorate.

Slight elevation of temperature and pulse. Cerebral and mental functions normal.

Dec. 31st., 8.30 a.m.:—Condition remains unchanged since yesterday, only had a few minutes sleep during the night.

Respirations ceased at 12 noon, but the heart was still beating and a faint radial pulse could be felt at 2 p.m.

Although there was a change in his condition each day, the changes were not continually progressive, but occurred rapidly about once in twenty-four hours. He would remain in much the same condition for twenty-four hours or more, with perhaps a slight improvement, when he would become rapidly worse and then remain unchanged for some time again. Before an increase in the paralysis, he would sometimes complain of chilly sensations and once, at least, at such a time the temperature was under 97° F., and the pulse 45 per minute.

NOTES ON A SHORT VISIT TO SOME OF THE HOSPITALS AND MEDICAL EDUCATIONAL INSTITUTIONS IN THE UNITED STATES AND CANADA.*

BY

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In the spring of the present year I took an opportunity of visiting some of the principal cities in the United States and Canada, with the object of seeing the construction and management of their chief hospitals and medical educational institutions. I have thought that it would not be without interest to give a short account of the impressions formed from what I saw, but as impressions gained by a short visit to a vast continent, such as America, are apt to be erroneous, and not likely to do full justice to the subject, I have hesitated a long time before committing them to writing. It is only at the urgent request of some friends that I venture to publish these brief notes, and I do so with the hope that they may encourage others to visit America and Canada, and to see what very valuable work is being done there. In this country we know too little of the amount of good work which is being done on the other side of the Atlantic, and how very up-to-date are their hospitals, and how advanced are their methods of medical education. The more the scientific workers in this small kingdom know their brethren on the great American continent, the better it will be for the progress of medicine and surgery.

The time at my disposal was short, but by keeping the primary object of my visit—that of obtaining information—always in view, I was able to visit the chief hospitals and medical institutions in New York, Washington, Baltimore, Philadelphia and Montreal. In every place I received the greatest consideration, and every facility for inspecting the various institutions which I had come to see. I cannot speak too gratefully of the kindness shown to me by members of our own profession, and laymen in all the cities I visited. I have often heard of the cordial reception which Americans generally give to strangers from this country, and the accounts are not at all exaggerated. The amount of trouble and unselfishness which so many showed me was very great. Everything was done for me in a most kindly and ungrudging manner.

Nearly all the large cities in America possess one or more fine mod-

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ern hospitals. I do not propose to weary you by an account of the various individual hospitals which I visited, but rather to give a summary of their main features. Much attention has been paid of recent years to the details of hospital construction in America. The general type, which does not differ materially from that in vogue in this country, is the Pavilion hospital. The height of the various hospitals differs, but generally we find that the architects in America do not favour the very high buildings, which are now so much in vogue for business purposes. In some instances, however, we see one run up to nine stories, but the majority do not exceed four or five stories. One large and important hospital is chiefly composed of single-story pavilions, but this arrangement, although providing for an adequate supply of light and air, has been found to present many disadvantages from an administrative point of view. As will be readily understood, a large hospital composed of single-storied pavilions covers a very great ground space, and this renders it most difficult to bring the food to the patients in a satisfactory and hot condition. This defect is so much recognized that I understand that any new extensions of accommodation required will be provided by building new stories on the old pavilions, rather than by erecting more new single-storied pavilions.

The principal departments of the hospitals may be considered separately as follows:—

1. *Medical and surgical wards with their accessories.* The wards are generally large and bright, and I was frequently impressed with their great width and the consequent extensive free space which existed along the centre between the rows of beds. In some instances at the end of the wards was an open terrace, on which the beds could be wheeled, so that the patients could be out in the open air in the summer. The accessories to the wards are a most important feature of many hospitals, they commonly include a dining-room for convalescent patients, and small wards adjoining the larger ones for noisy and other patients whom it is not desirable to treat in the general ward.

The ventilation of the wards in the majority of the American hospitals is affected by air driven in by fans, and drawn out by fans or hot air shafts. In winter the air is warmed by being forced over hot-water pipes before coming into the wards, or hot coils are placed in the wards in various positions. I saw no open fire-places in any of the American hospitals.

The construction of the floors of the hospitals varies, and this has been a serious source of trouble to all hospital managers and architects. It appeared to be the universal opinion that the perfect hospital floor has yet to be found. The ward floors were generally composed

of polished wood, but in some cases they were of polished figured tiles, a material which will strike many in this country as cold and unsuitable for a ward floor. Some tiled floors looked extremely well, and were considered by the superintendent of the hospital to have advantages over a wood floor. The corridors and the floors of the operating theatres were composed of simple concrete, lignolith—a composition comparatively recently introduced of wood pulp and concrete,—tirazzo —cement with small irregular chippings of marble interspersed,—mosaic, or tiles of various sizes. In the modern hospitals the tirazzo and mosaic floors were very general and very popular, but their great fault appeared to be the tendency to crack. Large sized tiles for corridors and operating-room floors did not seem satisfactory, but the weight of evidence would, I think, be in favour of small unglazed tiles for such situations. The mosaic floor, however, is undoubtedly an extremely attractive one, and at the present time is having a great run in America, not only being largely used in hospitals but in nearly all the large new hotels and restaurants. As I said before, however, no floor yet discovered is without faults for hospital puposes, and the perfect floor has yet to be found.

The walls of the wards were generally painted, while those of the corridors were provided with a dado of marble or some other hard material which was a great protection against damage by trucks, couches, etc. A dado composed of some hard material which cannot be scratched and so rendered unsightly, is certainly a great desideratum for the corridors of a hospital.

2. *The operating department* is a conspicuous feature of all modern general hospitals in America. Frequently a very large sum of money has been expended upon this section especially with a view to facilitate the keeping of it as aseptic as possible.

The operating department is commonly placed in a separate building from the wards, to which it is, of course, united by corridors. It commonly includes a large operating theatre, sometimes one or two small theatres, rooms for the sterilisation and storage of dressings, anæsthetising rooms, and rooms for the recovery of patients from serious operations.

The majority of the operating theatres and adjuncts have the floors composed of mosaic, tirazzo or tiles. The walls for a distance of 5—7 feet above the floor are frequently faced by beautiful marble slabs. It will be readily understood that such a method of construction must cost a very large sum, and although it conduces to the maintenance of asepsis and perfect cleanliness, it appears to be open to question whether such expensive structures are absolutely necessary, and it was

evident to me that many thoughtful members of the profession in America were beginning to question the necessity for such elaboration of details in the buildings devoted to operations. Buildings so constructed conduce to perfect purity of the atmosphere, but it is felt by many that this purity of the atmosphere is a much less important factor in maintaining asepsis than the condition of the operator's hands, instruments and whatever material comes into immediate contact with the wounds. American surgeons carry out the principals of asepsis most thoroughly, but the idea which prevails among many members of the profession in this country, that the American surgeons carry these principals so far as to always take a bath immediately before operating, is of course erroneous. Some of the operating departments are provided with baths for the use of the surgical staff, but such are probably more frequently used after performing a series of operations on a hot American day than previous to commencing work in the operating theatre.

I visited many operating departments, and admired the elaboration with which everything had been carried out, at great expense, with a view of promoting asepsis, but I could not help feeling that although this department of a hospital must be a structure which can be readily and thoroughly cleansed, it is not necessary nor desirable to go to the great expense which is incurred in many modern operating departments both on this and the American continent.

3. *The emergency department for medical and surgical cases* has attached to it small wards for the temporary detention of patients who are likely to only need hospital treatment for a few hours, and whom it is not desirable to admit into the general wards. Such small wards are extremely valuable, as they allow patients to be detained for further observation, who would otherwise be sent to their own homes or to the police department, and thus lessen the risk of sending away cases which, when first seen, appear trivial, but subsequently develop serious symptoms. They facilitate also the administration of the in-patient department, since cases frequently come to the accident and emergency rooms which are not in a sufficiently cleanly condition, or are too noisy to go into the general wards.

4. *Dispensary or out-patient department.* The only point which specially attracted my attention in this department was the fact that in some a very perfect system of note-taking and recording of cases by means of the card index system, was in thorough working order. Records of the cases were taken by the assistants, and if any patient was sent for an opinion to a department other than that to which he was first admitted, records of this fact and of the condition found in

McGill Hockey Team, Champions 1903

the second department were made. The result of the examination of secretions or blood made in the clinical laboratory concerning any out-patient were recorded, and were attached to the notes. The system adopted appeared to be not only theoretically good, but to be actually carried out in a practical manner. By this means a very valuable mass of evidence was gradually being obtained, and we all know what a large amount of similar material is wasted in this country for the want of some system of note-taking in the out-patient departments of our large hospitals. Of course such a system cannot be carried out without a sufficient number of assistants, who must not only have had experience of the method, but be willing to spend a large amount of time over the work.

5. *Private wards for paying patients.* Nearly every large general hospital in the principal cities of America makes a conspicuous feature of private wards for paying patients. This department is a considerable source of income to the hospital, as large sums are charged for the privilege of a private room, and the department appears to be well supported. The well-to-do American does not appear to have the strong objection to a hospital which the average well-to-do Englishman possesses. Private nursing homes are much less in vogue on the other side of the Atlantic than here, the private paying department of some general hospital taking their place.

In these private departments of the hospitals the amount charged varies with the size and position of the room, but very considerable sums are obtained for the privilege of using them. The fees paid for the room, which include board and nursing, go to the funds of the hospital, but the patient has in addition to pay a fee to the physician or surgeon in attendance. A patient may select any one of the physicians or surgeons attached to the hospital, and the amount of the fee for professional services is usually a matter of private arrangement between the patient and doctor. In some cases, however, where there is not an opportunity for such an arrangement to be come to, the general superintendent of the hospital fixes the fee to be paid to the medical man. One would expect that such a system was fraught with various dangers, and likely to lead to much trouble and friction in the management of a large general hospital primarily intended for poor people. So far, however, as I could ascertain, it worked well in America, and nearly all hospitals encouraged it and derived a considerable income from it. The only adverse comment which I heard of the system was that in some hospitals there was a tendency to make too much of the paying department to the detriment of the charitable portion of the institution.

6. *Clinical and pathological laboratories.* These form an essential and important feature of all large American hospitals. A very large amount of space is commonly devoted to the pathological and clinical laboratories, and the boards of management of the hospitals appear to attach great importance to these, and to regard them as a very essential feature of a well-equipped general hospital. The importance of good clinical laboratories, thoroughly equipped and in immediate connection with the hospitals, appears to be much more fully and generally recognized in America than in this country. A very large amount of good scientific work is being done in these laboratories, and the system of recording the results of the investigations brings it into direct connection with the clinical work and notes taken in the wards. The boards of management generally of the American hospitals seem to fully recognize and to encourage scientific work in the clinical laboratories, and to attach greater importance to it than is frequently done in this country. The pathological departments are, moreover, excellent. The mortuary invariably has some system of cold storage, and this, with the maintenance of perfect cleanliness and good ventilation, avoids, to a great extent, those objectionable odours which are so common in the pathological departments of hospitals. Although the weather was very warm during my visit, the *post mortem* rooms were never objectionable, and in some instances one would never have recognized by the nasal organ that one was in such a room. In some cases very nice arrangements existed, in connection with the mortuary, for friends to view the body. We may certainly learn much in America as to the best arrangement of a mortuary and *post mortem* rooms, and as to the best means of avoiding the unpleasantness usually associated therewith.

7. *A nursing home* adjoins every large general hospital. America learnt, I believe, her nurse-training methods from this country, but I think we must admit that she has now excelled her teacher. The nursing department in American hospitals is generally very efficient. At nearly every hospital I was much impressed by the type of nurse I met. The nurses evidently have a good general education before undertaking their purely professional work, and I had no doubt that there was a higher intellectual standard among the nurses of the American hospitals than is the case in this country. The training of the nurses is, I believe, very complete. In many of the hospitals the nurses take notes of the cases under their charge on points bearing upon the nursing, and such notes are preserved with the other clinical records of the case. I examined several lots of such notes, and was impressed by the evident care taken over them, and the value of such

a system. The adoption of this systematic taking of notes of points, which a nurse can observe in a hospital, is not only a valuable addition to the record of a case, but it is an education to the nurse, and makes her more thorough in her work. If more of the nurses in this country would make suitable notes, which were also legible, they would be a greater help to the medical profession than they are even at present. In reference to the legibility of nursing notes. I noticed that at one large hospital the nurses were taught to print rather than to write, and to make each letter of a word not only distinct, but detached and separate from its adjoining ones. The result was that there was more or less uniformity in the style in which the nursing notes were taken, and their appearance was not only most neat and satisfactory, but they were very legible.

In some cases the nurses were specially trained in the cooking of invalid foods, and in one hospital a special kitchen, with the necessary apparatus, was set apart for this portion of the nurses' training. I was told that some of the private paying patients were very particular about their food, which was considered not to be an altogether unmixed evil, as it tended to keep the nurses up to one of their duties—that of seeing that invalid foods were properly prepared.

The management of the hospitals in America is generally on much the same system as in this country. Usually there is a board of lay governors, with a layman as superintendent of the hospital. I was introduced to many of these lay superintendents, and was favourably impressed with the general management of the institutions. The superintendents were generally thoroughly trained, well educated men, and appeared to work harmoniously with the visiting medical staff.

The visiting medical and surgical staff is usually subject to a different arrangement from that in vogue in this country. Usually the hospitals have what is known as an alternating service, part of the staff being on duty for a certain number of months at a time, after which they have a period off duty and their place is taken by other physicians and surgeons. This alternating service was a necessity, I understood, chiefly because during the hot months of the summer the majority of the physicians and surgeons left cities like New York and went into the country, so that their services were not available for hospital duty. Where this alternating service prevails it is not uncommon for a physician or surgeon to be attached to two general hospitals, and so to arrange his hospital duties that he is at one hospital for one period and at another for the succeeding period, the seniors arranging to be away during the hot months of the year. In some hospitals, however,

a continuous service obtains, the visiting staff retaining office during the whole of the year.

The resident staff in American hospitals usually retain office for a longer period than is commonly the case in this country. A common arrangement is for a resident to be in office for two years; he may take his first six months on the surgical side and his second six months in the medical wards; and then for the final twelve months reverts to the surgical wards; or if he elects to begin on the medical side, he is first a house physician for six months, a house surgeon for six months and afterwards spends the remaining twelve months on the medical side. The number of residents and assistants who are not resident in the institution varies in the different hospitals, but they seem to be thoroughly well equipped and in some—as for instance the Johns Hopkins Hospital, at Baltimore—the number is very considerable and would surprise some of the boards of management in this country. The considerable number of assistants connected with the American hospitals facilitates the keeping of clinical and pathological records, and I was impressed by the care which is bestowed on the taking of such records and with the indexing of the same. The Americans never lose sight of the fact that the principal hospitals ought to be scientific institutions, whereat the treatment of the sick is only one of their duties. The recording of the cases and the general scientific work of these hospitals is maintained at a very high standard of excellence.

The education of the medical student in America. There are a very large number of degree-granting corporations in the United States, and the value of the degrees varies considerably. In the more important schools the general medical and surgical course of study extends over a period of four years. In many a very high standard of education is maintained and generally medical education in America has considerably improved of recent years.

The method of teaching adopted in instructing the American student is very similar to that seen in our English schools, but in the third and fourth years of study there appears to be a strong tendency to attach less importance to didactic or systematic lectures than with us. A very large amount of time is devoted to teaching in the clinical laboratories and to practical clinical work at the bedside. There appears to be a strong feeling among the members of the profession who are engaged in medical teaching in America that the time of the student can be much better spent in this way than by attending systematic lectures on medicine and other subjects. In place of systematic lectures a large part of the time is devoted to what are

termed "Quizzes." A certain portion of a recognized text-book, say of medicine, is given to a student to read, and he is subsequently questioned upon it. Although the general tendency on the American continent appears to be to attach less and less importance to systematic lectures, there are still some teachers who maintain the old system, consider it the best and deprecate the system of so largely doing away with systematic lectures. As to whether the plan of replacing didactic lectures by such a method as I have referred to above is altogether advisable may be open to question. The value of systematic lectures so largely depends upon the individual lecturer, and it is certainly a fact that few men are capable of giving a student information in a form which he cannot more readily and perfectly obtain from text-books. General systematic lectures on such a subject as medicine, which shall give a student commencing his clinical work a broad and general view of the subject, must be of value, and almost indispensable to obtaining a general insight into the subject. But full and complete lectures entering into the details of all the various branches of so wide a subject as medicine occupy so much time, and extend over so long a period that their value to the average medical student is most questionable. Elementary lectures on medicine, giving a student commencing clinical work a broad, general outline of the subject of medicine must still have a value which a prolonged course, treating in detail the various diseases, cannot possess. Such elementary lectures of the type I have in my mind, are probably the most difficult to provide, as so few teachers are capable of delivering them in a manner to interest and keep the attention of the young student, or are willing to devote their energies to them. The teaching of elementary medicine is most difficult and requires a physician of large and broad experience, and yet we usually find the junior medical students in our hospitals are taken in hand by the junior members of the teaching staff, whilst the senior physicians and surgeons almost entirely devote themselves to the senior students. Such an arrangement does not appear to me the most advantageous from a teaching point of view. The value of systematic lectures depends, as I have said, so largely upon the type of lectures, and so few men are capable and willing to give what we may term general elementary lectures, that one can quite understand how the present position of the subject in America has been brought about. There the tendency is to abolish systematic lectures, to replace them by setting portions of a recognized text-book to be studied, and then questioning the student upon the part read.

It seems to me advisable that we, in England, should consider

whether our plan of numerous systematic lectures on various subjects, and each course trying to embrace the whole subject of which it treats, is best calculated to conserve the time of the average student and to give him the best insight into his professional work. I think there can be very little doubt that if a vote were taken among the medical students of this country, who had completed their courses of systematic lectures, that there would be a large majority which would condemn our present system, and, although many would except some specially capable lecturer from their strictures, the majority would say that generally speaking the time spent at lectures, although not entirely wasted time, could much more profitably have been spent at tutorial classes, in the clinical laboratory and in ward work. This appears to be the position at which the teachers in the American medical schools have arrived. Didactic and systematic lectures are thus becoming less numerous every year. Some teachers, however, feel that the tendency to abolish such lectures is being carried too far and that without them it is not possible to give that broad and general survey of the subject which is desirable. Probably a middle course will turn out to be the best, and if a remodelling of our systematic lectures on various subjects so as to shorten them and make them more general in their scope, is the result, it is probable that we shall conserve both the time and energies of the professor and student and make their work more valuable to the community in general.

In America, more and more importance is being attached to teaching in the clinical laboratories and in the wards. When speaking of the construction of the American hospitals I called attention to the large amount of space which was given to clinical laboratories and how very well equipped they are. A very large amount of time is spent by the American student in these laboratories and there he is taught the examination of the blood, the qualitative and quantitative examination of the urine, the examination of the expectoration, of vomited and other matters. In his third year he is thoroughly ground in the details of these examinations in special classes, under the direction of the assistants, and in his fourth year he continues his investigations, when he is engaged in more direct bed side work; and his reports, still checked and superintended by the residents in the hospital, become valuable in the hospital records. My impression was that the clinical laboratory work was more systematic and more thoroughly taught at some of the best schools in America than is usual in this country. A large number of the present teachers in the medical schools of America have been students in Austria and Germany, and it is evident that they have been much impressed with the methods of teaching adopted in

those countries, and with the scientific work which is being done there. They are now engaged in training a large number of students on similar lines in their own country and are themselves doing valuable scientific work.

It is difficult for the average medical man in England, who has not visited America, to form an accurate opinion about the scientific work in medicine and surgery, which is being carried out on the other side of the Atlantic. The number of medical periodicals which is published in America is extremely numerous, and unless one knows which are the best of those publications, we are very apt in this country to think that quantity rather than quality is the feature of the medical work published in America. In all countries it is probably true that much matter is published which is not only not worth reading, but would have been better left unwritten. In a large continent such as that of America, especially where advertisement and specialism have reached, let us hope, high water mark, this becomes very evident and it is only by getting to know which are the first-rate medical journals, or by a visit and personal contact with the workers, that we can form an accurate idea of the really valuable medical work which is being done in America.

During my visit I had the good fortune to have an opportunity extended to me of attending the meetings of the Association of American Physicians, which was being held at Washington. This association is something the counterpart of which we have not in the old country. It is an association composed of physicians and pathologists who meet together once a year to discuss scientific medical subjects. They have no medical politics and the time of their meetings is devoted to the discussion of papers of interest to the clinical physician, the pathologist and the clinical laboratory worker. The membership is limited to 125 members, and to be elected a member of this association is considered a high honour. The desire for membership is so great and the number of men doing good scientific work is now so numerous, that it is proposed to raise the limit of membership to 150. The roll of members is a most distinguished one and there can be no doubt about the high scientific value of the work which they are doing. There are similar associations of surgeons and various specialists. These several associations hold a conjoint conference once in every three years.

As the annual meetings of these various associations bring together the workers from different parts of America and Canada, the members are kept in touch one with another and with the work each is

engaged in. The absence of medical politics, the devotion of the time of the meetings to scientific work, which must be of general interest to the various members of the particular branch of the association, together with the limitation of the number of members in the particular association, are important features of these conferences.

Our American confréres are doing very valuable scientific work, and I can strongly recommend any medical man to visit the United States and Canada with a view to seeing up-to-date hospitals and associated medical institutions, and to see how great is the number of men—nearly all of whom are comparatively young—engaged in medical education and in valuable scientific medical work. As I have said before, a visitor from this country is certain of a very cordial and kindly welcome and I have no doubt he will return, as I did, grateful for many kindnesses and with broader views on many subjects. If the above fragmentary notes encourage more of my fellow countrymen to visit the medical educational institutions on the other side of the Atlantic, I shall feel some recompense for having been rash enough to allow to be printed my impressions of a very brief visit.

RETROSPECT

OF

CURRENT LITERATURE.

Gynaecology.

UNDER THE CHARGE OF WILLIAM GARDNER.

Tuberculosis of the Female Genitalia, A Summary.

While the existence of genital tuberculosis has been recognized for something more than a century, the first case having been described by Morgagni in 1774, a scientific and more or less accurate appreciation of the condition dates only from the appearance of Hegar's monograph in 1886. In 1881 tuberculous Fallopian tubes and ovaries had been successfully removed in a laparotomy by Mandach, and Babes in 1883 had discovered the tubercle bacillus in the vaginal secretion, but Hegar was the first to gather into a coherent thesis the mass of outstanding and variable facts which had been before his time, merely cumulative and chaotic, and to him belongs the credit of imparting a definite individual impulse to the halting progress of our knowledge of this disease. Since the advent of this monograph newer and more scientific conditions have obtained. There have been an increasing frequency of surgical intervention and all the added opportunities for investigation and experience, which such intervention entails, a perfecting of the various methods of examination, both clinical and pathological, and a widespread dissemination of a systematic and thorough use of such methods together with a careful statement of all issues and results. Consequently data have accumulated and advance has been made. The monograph of Whitridge Williams, which appeared in 1894, punctuates the history of this general advance, and at the same time enables us to measure the results of the eight years which had elapsed since Hegar's work. Another eight years and in 1892, at the meeting of the International Congress of Gynæcology and Obstetrics held at Rome last September, the third subject for discussion was "tuberculosis of the female genitalia." This discussion was introduced by Professor Martin of Greifswald, who was followed by Faure of Paris, J. A. Amann of Munich, and J. Veit of Leyden, and proved a most

able disquisition of our present-day knowledge of the subject. While nothing strikingly new was forthcoming, the clinical and pathological picture was clarified and in parts redrawn in stronger and in less ambiguous lines. Than ever before there were here a keener and more impartial scrutiny and judgment of the pathological and clinical data of which we are possessed.

The object of this paper is merely to give a summary of the discussion. In the main I shall follow Veit's thesis, perhaps the ablest of the four, but at the same time I shall reinforce the statement at various points by abstracts from the others. Veit begins his paper by discussing various "theoretical considerations" under which he includes the following :

1. *The frequency of occurrence of genital tuberculosis.* The statistics of various observers are cited, but the case is perhaps most fairly put by quoting the figures of von Hanseman derived from the Hospital Am Friedrichshain at Berlin. During a period of five and a half years, 7,000 autopsies were made at this hospital, and of these 450, or 6.5 per cent., were of tuberculous women. Among these 450 cases, the genitalia were tuberculous in 18, or in 4 per cent. In this matter the citations of different observers vary considerably, but the statement can be justly made that the genitalia are affected in from 4 to 6 per cent. of women suffering from any form of tuberculosis. Faure affirms that in men this proportion is but 3 per cent., and so claims that genital tuberculosis is more common in women. Of the organs themselves the Fallopian tube is out of all proportion the most frequently affected, seldom is the uterus and extremely rarely the ovary.

2. *Pathology and modes of infection.* It goes without saying that the pathology is indissolubly linked with the presence of the tubercle bacilli in the tissues and the various reactive changes therein which these organisms produce. As conditions predisposing to a nidus, within the generative organs, suitable to the growth of the bacillus, Faure mentions hypoplasias, all chronic inflammatory processes pyogenic or gonorrhæal, and especially the latter. The disease is found commonly between the ages of ten and thirty years.

The bacilli themselves, we may say, reach the generative organs either :

(*a*) Directly, by ascending through the vulvar orifice and vagina, or descending through the ostium abdominale of the Fallopian tube, or

(*b*) Indirectly, through the lymphatic and blood streams.

(*a*) Directly:—In the ascending inflection the organisms are introduced directly into the vagina at coitus or by contaminated fingers or

instruments. If the host of these bacilli be the patient herself, as may happen when the respiratory or alimentary systems are tuberculous, there results an auto-infection; if a stranger host, a hetero-infection. If the vagina be healthy, offer no abrasions, "le microbe et les lésions qu'il occasionne se propagent par continuitè le long de la muqueuse. Rappelons toutefois que la bacille peut cheminer sans occasionner des lèsions qusqu' aux trompes; cellesci peuvent rester ensuite seules atteintes ou bein, de lá, les lèsions peuvent, par voie descendante, gagner peu à peu les régions sous-jacentes." So Veit's argument is defined, and this in spite of the fact universally accepted, of the non-motility of the organism itself, and of the carefully performed experiments of Popoff with guinea-pigs, where cultures of bacilli placed directly in the vagina produced no infection whatever at any level of the genital tract unless the vaginal mucosa had been previously wounded or diseased. In the matter of the passage of free bacilli up to the level of the Fallopian tube without producing any lesion, Hegar's contention seems the more reasonable, his argument being that the bacilli, through minute abrasions and occasioning only microscopic lesions, pass from the vagina into the para-vaginal and para-uterine tissues, implicate thence the pelvic peritoneum, and then descending pass directly into the Fallopian tube. If, on the other hand, the bacilli be included within active spermatozoa their innocuous passage up to the level of the Fallopian tube is explicable, and, according to Veit, this form of hetero-infection does occur, for, as has been shown by Gaertner, Landouzy, Martin and others, the spermatic fluid of individuals, the subject of advanced tuberculosis even other than genital, contains tubercle bacilli, though these are few in number.

In the descending infection the organisms, either free, included in cells or caseous debris, enter the Fallopian tube from the peritoneal cavity. This possibility has been demonstrated by Pinner, who in his experiments, has shown that substances introduced anywhere into the peritoneal cavity, even if these be motile organisms, tend to accumulate in the lowermost portions of the cavity and pass thence into the Fallopian tubes.

(*b*) Indirectly. (*1*) *By the blood stream.* According to Kleinhaus there are three facts which support this method of dissemination.

(*x*) The existence of a genital tuberculosis consecutive to a pulmonary tuberculosis with no intermediate foci.

(*y*) The frequency of the localization of tuberculosis at the placental site.

(*z*) The transmissibility of the bacillus from the mother to the fœtus.

To these three considerations Veit adds as a rider the following fact:—The frequency with which there occurs an acute widespread miliary tuberculosis subsequent to the existence of a single circumscribed focus.

(*2*) *By the lymphatics*;—the phenomena here being simply those of an infected wound. If the primary focus be in the upper two-thirds of the vagina or the cervix uteri, the hypogastric glands become in course affected and tuberculous foci establish themselves near the most vulnerable segment of the genital tract—the Fallopian tube.

(*3*) *Primary genital tuberculosis.* Veit approaches this much discussed question with extreme caution and lays down the following axiom. "The conditions absolutely requisite in order that a genital tuberculosis be considered primary are essentially anatomical; apart from the genital organs there ought not to exist tubercular lesions in any other part of the body, exception being made to those regions (meninges, joints and peritoneum), where the infection is necessarily secondary." But the difficulty here begins, from the fact that the primary focus, superficial, glandular or visceral may be very small, and to be found only after thorough search and such search made post mortem. For example, given a genital tuberculosis co-existing with a tuberculous peritonitis and these the only lesions in the body, invariably must careful and minute search be made throughout the whole gastro-intestinal tract for any trace whatsoever of a primary focus or even cicatrix before the genital tuberculosis can be pronounced primary. Clinical proofs as to the primary nature of the lesion must be totally disregarded, for the conclusion in this matter is only to be founded upon careful pathological research. "Hence, if we consider as primary genital tuberculosis only those cases in which there does not exist, outside the genital organs, save in regions where the lesion is necessarily secondary, any other lesion, or remains, or cicatrix of a lesion, the autopsy having been made with all care, our diagnosis will have every given possibility of approaching the truth." On the point of primary genital tuberculosis Veit plays havoc with the several tables of statistics which place as primary 8 to 12 per cent of all the cases of genital tuberculosis. Analysed according to the above strict conditions, he considers that we have only the following indisputable cases:—Primary tuberculosis of the Fallopian tubes, ten cases (Orthmann cites 33); of the ovary, none; of the uterus, five cases; and of the vulva and vagina, none. Upon the moot point, as to whether or not tubercle bacilli can pass through a mucous membrane without producing therein a local lesion, the pronouncement is as follows:—"I believe that al-

ways at the point of entry there is produced a local lesion, but the lesion may heal so quickly as to pass unperceived." (In this strict sense accordingly the primary lesion must always be at the point of ingress, and all subsequent manifestations of the disease, wherever found, secondary.)

Symptoms:—In the words of Martin, "at the present time we do not possess any symptom or sign pathognomonic of tubercular infection of the genital organs; . . . . the fact upon which the great majority of my patients insist is the absence of pain in the genital sphere." The anamnesis may disclose significant facts in the shape of a suggestive family history, or account of some previous chronic trouble in the glands, lungs, bones or joints. If associated with such a history we get a persistent uterine catarrh, a gradual thickening or increase in the size of the Fallopian tubes, a peritoneal reaction, ascitic or adhesive, not otherwise to be accounted for, suspicion of the nature of the condition cannot fail to be aroused.

Diagnosis:—The following methods are, if possible, to be employed:

(1) Microscopical examination of portions of tissue removed from any doubtful lesion of the vulva, vagina, or cervix uteri, or from the interior of the uterus by a curetting; a careful search to be made in every case not only for the tubercles with their characteristic histology, but also for the bacilli themselves. In tubercles when the process of healing has begun, the organisms are few and indeed often absent.

(2) Examination of the secretions from the uterus microscopically and by cultural and inoculation methods.

(3) Careful bimanual palpation at all times where the uterine appendages are involved. When the appendage lesions are small and of doubtful character, some considerable importance is to be attached to the following points as indicative of early tuberculosis.

(*a*) Beaded nodosities in the substance or on the surface of the utero-sacral ligaments.

(*b*) Irregular nodes in the isthmian portion of the Fallopian tube (salpingitis isthmica nodosa).

(*c*) Widespread adhesions about the Fallopian tubes with small tendency at least at first to complete occlusion of the tubes themselves.

In these ways a distinction from gonorrhœal salpingitis is to be drawn, a differentiation which in these cases is often of very great difficulty, and an approach to a diagnosis made.

(4) General examination of the patient. Much that appears here deserves no capitulation and three considerations only demand mention.

(*a*) A blood examination offers us no help in these cases as we possess as yet no hæmatological sign of any value whatever.

(*b*) The frequent coincidence of tubal pregnancy and tubercular salpingitis justifies the conclusion that the latter may be oftentimes the cause of the former and warrants us in any given case of ectopic gestation to keep in mind the possibility of genital tuberculosis.

(*c*) Hegar has drawn attention to the fact that children born of tuberculous parents are more frequently malformed. Veit, while endorsing this statement, concludes that the converse of the argument, namely, that deformed offspring establishes an inference of parental tuberculosis, scarcely enters the field of practical medicine.

Prognosis:—This is ever grave, albeit spontaneous cure is always possible and numerous cases are on record in which removal of the diseased segment afforded permanent relief.

Treatment:—Veit institutes a plea for early diagnosis as being after all the most efficient means of treatment, here, as elsewhere, of tuberculosis. Again he urges upon our recognition the constant tendency to "spontaneous cure" of all lesions of such nature, provided that the resistance of the individual be not greatly impaired. Accordingly the first effort in treatment is to maintain, and, if possible, increase this individual resistance by the exhibition of all the hygienic and therapeutic agencies at our command. Prophylactic measures can be summed up in two phrases—a careful hygiene for the healthy, and a suitable segregation for the diseased. A strong protest is entered against the marriage of tuberculous individuals. Among therapeutic agencies we possess as yet no specific.

Veit's standpoint in the question of operative interference is more than usually conservative; it is thus defined by himself. While in cases of primary genital tuberculosis operative measures are probably often justifiable, "in the treatment of secondary genital tuberculosis, or at least in the treatment of the infection localized to the genital organs, radical operation should constitute the exception, and, on the contrary, general and local treatment the rule." And, again, in the words of Hegar, which he quotes,—"Operation is indicated only in the cases of tuberculosis which are circumscribed and where there does not exist any indication of any arrest or a regression in the evolution of the lesions."

When operation is determined upon, the disease being in the appendages, choose the abdominal route and make the operation radical, removing uterus, ovaries and tubes, unless, as in very exceptional circumstances, the disease be practically confined to the appendages of one side, in which case remove only the diseased segment.

Where there is an associated tubercular peritonitis, attempt at first general treatment. If there be no tendency to cure and ample time have been given for the formation in the tissues of reactionary antitoxines, perform a cœliotomy, evacuating any fluid present; if the inner genitalia reveal the presence of foci of disease in their parenchyma and not merely an implication of their peritoneal surfaces, remove them, even though there be tubercular foci in other regions of the body.

In the topical treatment of genital tuberculosis the first place belongs to iodoform.

Veit concludes his paper by a separate chapter on tubercular peritonitis. He recognizes two forms of peritonitis, an ascitic and an adhesive, discusses at some length and accepts Gatti's theory of the formation of reactionary antitoxines in the tissues, and so accounts for the good results which often follow the complete evacuation of the ascitic fluid, the antitoxines consequently reaching the bacilli in a more concentrated solution. He advocates in any given case a period of watchful general treatment in the hope of securing a "spontaneous cure" and at the same time allowing ample time for the formation of the antitoxines, operates by a cœliotomy with complete evacuation of any fluid and, if the uterine adnexa are extensively diseased, performs at the same time a pan-hysterectomy.

W. W. Chipman.

Reviews and Notices of Books.

A Text-Book of Surgical Principals and Surgical Diseases of the Face, Mouth and Jaws for Dental Students. By H. Horace Grant, A.M., M.D., Professor of Surgery and Clinical Surgery in the Hospital College of Medicine; Professor of Oral Surgery in the Louisville College of Dentistry. W. B. Saunders & Co., Philadelphia and London. Canadian Agents, J. A. Carveth & Co., Toronto. Price $2.50.

This book is interesting for dental students, and is clearly writen and well illustrated. It deals with the conditions which come specially under the care of dentists. Syphilis, tuberculosis and malignant diseases of the cavity of the mouth and face are considered as well as the inflammations, ulcerations and tumour formations. It would seem that fractures, particularly of the lower jaw, scarcely receive the attention which they deserve.

The sterilization of instruments and dressings is mentioned. This is a most important subject and should be strongly emphasized. It is a neat book which can be recommended. *G. E. A.*

Saunders Medical Hand-Atlases. Atlas and Epitome of Abdominal Hernias. By Dr. George Sultan, First Assistant in the Surgical Clinic of Gottingen, Prussia. Authorized Translation from the German, Edited by William B. Coley, M.D. Philadelphia and London, W. B. Saunders & Company, 1902. Canadian Agents, J. A. Carveth & Company, Toronto. Price $3.00.

This is one more of the series of admirable atlases published by W. B. Saunders & Co. The names of the author and the editor would seem a sufficient guarantee of the quality of the book. It deals with the theoretical and operative side of a subject of great interest to the general practitioner and the surgeon in a most comprehensive manner. A brief and most interesting summary is given of the experimental work done by Roser, Busch, Lossen, Bidder and Kocher. The diagnosis, varieties, complications and sequelæ receive full consideration. The different operations for the radical cure are described in detail and are made quite clear.

In speaking of gangrenous intestine in strangulated hernia the

author quotes figures which show that, if the condition of the patient warrants, better results are obtained by resection than by establishing an artificial anus. Peterson has reported twelve primary resections of the intestine in the Heidelberg clinic with but one fatal result, a mortality of 8 per cent. The operations were performed under local anæsthesia and the Murphy button was employed.

The book contains 119 illustrations, 36 of them in colours; the publisher's work is of a very high order; we recommend it very highly to our readers. *G. E. A.*

CANCER OF THE UTERUS. A CLINICAL MONOGRAPH ON ITS DIAGNOSIS AND TREATMENT. By ARTHUR H. N. LEWERS, M.D., Lond, F.R.C.P. Lond, 8vo., pp. 328. Price, 10s. 6d. H. K. Lewis, London, 1902.

There is an admirable book by the Obstetric Physician to the London Hospital In the first part much attention is given to the all important question of early diagnosis. In the vast majority of cases when first seen for examination by a medical man, diagnosis is easy, but in most cases all hope of cure is gone. "Too late" is what the doctor must say to himself, if not to the patient. All who have much to do with this dread disease know that it is because women do not appreciate the significance of the early symptoms, the bleedings and meat-water discharges.

In order that more cases may be reached by surgery sufficiently early, Dr. Lewers makes a suggestion with which we cordially agree. It is that something of a practical nature be done to make women familiar with these suspicious symptoms. The diffusion of knowledge should, of course, be quite impersonal and for England might be, by wide circulation of a leaflet issued by the two Royal Colleges of Physcians and Surgeons, to be sent to every registered medical man with the suggestion that copies be sent to nurses, matrons, district visitors, and others of a class who are often consulted by patients before they are seen by medical men.

The gross and microscopical characters of the malignant diseases are well and concisely described and illustrated. The illustrations and descriptions are, however, far inferior to those of the monumental work of Cullen, of the John Hopkins Hospital. While claiming that the clinical characters and microscopical appearances of carcinoma and sarcoma are distinctive, the author remarks that "the malignancy of an adenoma of the uterus cannot always be proved by examining sections of the growth under the microscope, that its true nature is really malignant may only become apparent by watching the progress of the

case." All gynæcologists of large experience will concur in this opinion.

In the sections on treatment the various operations, partial and radical total extirpation of the uterus are fully considered. In discussing the modern extension of radical operation to the broad ligaments, cellular tissue and lymphatic glands, the author shares the opinion of conservative operators that they are of doubtful advantage, while primarily of great danger to life. Numerous illustrative cases are reported, and tables appended giving the after results of each of the various operations.

This admirable inexpensive little book should be in the working library of every gynæcologist and general practitioner, and should be carefully read. *W. G.*

THE INTERNATIONAL TEXT-BOOK OF SURGERY BY AMERICAN AND BRITISH AUTHORS. Edited by J. COLLINS WARREN, M.D., LL.D,. Eng., Professor of Surgery Harvard Medical School; and A. PEARCE GOULD, M.S., F.R.C.S., Surgeon to the Middlesex Hospital, London. Second Edition, thoroughly revised. W. B. Saunders & Co., Philadelphia and London. Canadian Agents, J. A. Carveth & Co., Toronto. In two volumes. Price per volume, $5.00.

That a new edition of the International Surgery is required in two years is evidence of the quality and popularity of the work, and also of the rapid strides being made in Surgery. The most up-to-date book very soon gets out-of-date, and carefully revised and improved editions are necessary.

The authors and editors have made some important alterations in the present edition. Diseases of the lymphatic system have received increased attention, and a more thorough and radical removal of tuberculous glands is recommended in the present than in the former edition.

The chapter on the therapeutic results to be obtained by the use of the Röntgen ray and the Finsen light will be much appreciated. Every one is interested in the possibilities of these therapeutic agents, which seem to promise much in suitable cases.

It is to be regretted that more notice has not been taken of some of the more recent investigations into the nature of malignant disease by Plimmer and Russell in England, San Felice in Italy, and by Park and Gaylord in America.

Altogether the work is to be heartily commended as representing the best in English and American Surgery.

Society Proceedings.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

Stated Meeting, December 5, 1903.

G. E. Armstrong, M.D., President, in the Chair.

A Case of Sarcoma of the Ovary.

Dr. F. R. England read the report of this case.

Dr. Lapthorn Smith stated that in this case the diagnosis had been appendicitis and it often was not easily made. As soon as he saw the abdomen open and the ascitic fluid escaping he remarked that it was a malignant case as he considered this a sure sign of malignancy. He was glad Dr. England had removed both sides as the disease was likely to recur in the other side, and he cited an instance of this. The prognosis in his experience in sarcoma was very favourable. The frequency of sarcoma was only 1 in 100 cases of ovarian tumour.

A Mass of Hair Removed from the Stomach of a Girl of Twelve Years.

Dr. James Bell read the report of this case and Dr. Keenan gave the pathological study of the condition. See page 94.

Dr. Adami said that three cases had been reported in Canada, two in Montreal,—this case of Dr. Bell's and one reported by Dr. Osler. In the latter there were two portions, one fitting the pyloric end of the stomach and the other the cardiac, the two evidently playing upon each other during life. Possibly this separation into two parts indicated that there had for a time been arrest of the habit, and that on resumption the new hairs formed into a separate bolus. This was altogether the third case on record in which the condition has been diagnosed before operation; in every other case a false diagnosis was made. He would like to ask Dr. Bell, taking into account these frequent mistakes in diagnosis, what were the particular conditions which led him to a correct diagnosis here.

One point not noted by Dr. Keenan in his review of the subject was that in these cases the hair was often noted to be much darker than the hair of the patient. The accumulation of the hair extended over a long period of time, and it was quite natural to suppose that the darkening was due to the action of various sulphides produced by certain foods in the stomach. Another point was the extension down the

duodenum. In looking at the specimen he found himself a little puzzled to determine which was the part corresponding to the pyloric ring: there appeared to be two constrictions of the hair mass towards the duodenal end. These hair balls were very common in cattle. At the last meeting of the American Veterinary Association ten hair balls were exhibited taken from cattle.

Dr. Bell, in answer to Dr. Adami, with regard to the making of a diagnosis, said that the child was very thin and the mass was easily palpable and definitely a cast of the stomach. There was a history of gastro-enteritis of nearly two years duration, and it was obvious that no neoplasm could have so exactly outlined the stomach. Then the sensation to the finger was not that of a tumour growth, but of some foreign body, and thus there was left only one gap to fill in, the nature of the material. Knowing that such conditions had been recorded there was little difficulty in setting it down to this. With regard to the colour and length of the hair, that of the child was quite flaxen and in no place was more than 8 or 10 inches long. There was no doubt about the position of the pyloric ring as it was of normal shape, only considerably enlarged, and could be seen where the tumour became small.

Various Genito-Urinary Conditions.

Dr. Jas. Bell read the reports. See page 95.

Dr. Adami said that the first two cases were of some interest as showing the parallelism between a chronic gonorrhœa affecting the genito-unirary organs, and tuberculosis. In the first case, although the lesions in the kidney closely resembled tuberculosis, no tubercle bacilli could be detected, in the second there was undoubtedly tuberculosis implanted upon gonorrhœa. In the first case described by Dr. Bell the kidney was the seat of an abscess formation which, in parts, closely resembled tuberculous softening. The breaking down of the lower end of the kidney had led to the interesting condition of fistula into the intestine, there being two fistulæ opening from the broken down lower end of the right kidney into the beginning of the ascending colon posteriorly. Associated with this there was a condition of gonorrhœal vesiculitis of the left side. The seminal vesicle of this side was markedly enlarged with evidences of chronic inflammation. It contained thick jelly-like material which extended into the first part of the vas. The globus major and the globus minor of the epididymis of the left testicle showed extensive chronic inflammation with atrophy of the testicle, not unlike what is to be seen in tuberculosis. Yet the history in this case gave no evidence of tuberculosis nor of tubercle

bacilli being found on repeated examination of the urine or again in the tissues. The condition also of the testis and epididymis was not quite what one would expect to find in tuberculosis inasmuch as the process was limited and did not implicate the capsule or lead to surrounding fibrosis.

The kidneys in this case resembled closely those exhibited before the Society two years ago of neglected gonorrhœa contracted some four years previous to death. In that case there was marked cystitis and specialists in New York diagnosed tuberculosis, but although on the patient's return to Montreal the urine had been examined some forty times tubercle bacilli were never found, while at the autopsy, in the pelvis of the kidney smears were obtained showing characteristic diplococci.

In the second case there were similar evidences of old gonorrhœa. The prostatic tissue here was largely wanting, the prostate being converted into a series of wide saccules, an appearance arising probably in the first place from acute prostatitis with loss of tissue and being exaggerated by the internal pressure resulting from stricture. In this case pus was found in the left seminal vesicle and the vas showed two very considerable fusiform dilatations, one at the lower end, one at the upper end of the pelvic portion. These dilatations contained pus but no tubercle bacilli. The left testicle resembled much that in the previous case, save that here definite miliary tubercles were present throughout the body of the testicle and there was a very definite tuberculosis of the uterus.

The third case showed similarly atrophy of the prostate, but this atrophy here appeared to be connected with the previous operative removal of the left testicle and there was, in addition, intense cystitis, and chronic inflammation of the ureter with surrounding fibrosis. The pelves of the kidneys were markedly distended and contained a gritty material.

Two Cases of Cæsarean Section followed by Subperitoneal Hysterectomy.

Dr. Chipman read this paper. See page 17 of the January number.

Dr. William Gardner had seen the first patient during her first pregnancy with Dr. Wilson for the purpose of discussing the question of operation, but had advised against it. When labour came on she was put under chloroform and a slight but very ineffectual attempt made to use the forceps. At the operation he had been struck with the extraordinary thickness of the uterine wall which had to be gone through, and the explanation of this had become apparent on striking

with a knife an ordinary fibroid, which accounted for the enormous development. He had not quite gathered in Dr. Chipman's case whether the impediment was to the muscular action of the uterus, or to obstruction from the presence of the two nodules on either side of the cervical canal.

The speaker had been associated with Dr. McCallum in the care of a lady nearly 40 years of age, pregnant for the first time, and who had appeared to have a mass of fibroids in her uterus. They had been prepared, if necessary, to operate during labour, but when the time came they succeeded in raising the mass and delivering the patient, but she had died suddenly before recovering consciousness and after delivery of the placenta. No cause could be ascertained, but it illustrated the point that danger might be met with in attempting to displace such a fibroid mass at the time of parturition. He did not think the fundal incision was at all likely to become popular, and Dr. Chipman's case seemed to add further evidence against it.

Dr. Lockhart thought it was rather an extraordinary coincidence that Dr. Gardner should have taken the ordinary incision and struck the placenta, and Dr. Chipman the unusual one and done the same thing. He believed that the fundal incision had rather fallen into disuse. Dr. Lockhart had had only one case of Cæsarean section himself, and his success had been in a measure due to Dr. Gardenr's presence. After removing the whole mass from the abdomen and covering it carefully with warm antiseptic towels, one assistant had controlled the hæmorrhage digitally by a hand on each side, while another steadied the uterus while the incision was being made. He thought if these precautions were taken it was quite unnecessary to cut off all the circulation except by one artery.

Dr. Chipman, in reply, thought the danger to the child was not much increased by cutting off half the blood supply. Digital control of the vessels of the broad ligament was all very well, where one could get down into the uterus, but if the fibroids had grown into the broad ligament it was impossible to get down far enough, and the loss of blood might mean the death of the patient.

Stated Meeting, Jan. 2, 1903.

H. S. Birkett, M.D., President, in the Chair.

The following were elected Officers of the Society for the Session 1903-04:—

President—Dr. H. S. Birkett.

Vice-President—Dr. John A. Macdonald.

Treasurer—Dr. Alfred T. Bazin.

Secretary—Dr. A. Mackenzie Forbes.

Dr. James A. Jack was elected a Trustee to succeed Dr. G. A. Brown, who retires.

Analysis of About One Hundred Cases of Gastric Ulcer.

Dr. F. A. Cantlie read this paper by Dr. C. F. Martin and himself.

Dr. F. G. Finley was much surprised at hearing there were so few male cases, and thought at the Montreal General Hospital the number was very much larger. He had been struck by the number of sailors who suffered from gastric ulcer, and thought this might be attributed to the proverbial hard tack and coarse food to which they were accustomed. He had noticed that Dr. Cantile did not say much about hyperacidity, and presumed the authors of the paper had been somewhat chary about passing the stomach tube. Although the Germans said there was no harm in using it, the speaker did not like to use it unless there was some indication specially for it.

Dr. F. W. Campbell speaking of the nine operations which had been reported in the paper, wished to know how the diagnosis was made, and how duodenal ulcer was excluded. He referred to a case seen many years ago, in which the late Dr. Palmer Howard, Dr. Osler and himself had been interested, and where a diagnosis of gastric ulcer by the two last named had not been agreed to by Dr. Howard, solely on the statement that blood was passed by the bowel and none whatever vomited, and that consequently the ulcer was duodenal. The patient had refused to submit to rectal treatment and on the speaker's suggestion had consulted Dr. Austin Flint, who told him that the condition present was melœna, due to liver trouble and that he had no ulcer. Before this consultation the pain and discomfort had been so great that he had been kept for days under the influence of morphine, but on returning to his hotel he ate a hearty meal without discomfort and thereafter remained well for a long time. He finally died of hæmorrhage from the rupture of a large vessel, and left word that a post mortem examination was to be made, which Dr. Osler performed, and the ulcer was found in the duodenum. The peculiar part of the history is that for weeks he did not suffer any inconvenience whatever. Dr. Campbell said that he had not seen very many cases and it seemed a great advance that to-day we could do so much, where formerly we were absolutely powerless.

Dr. James Stewart agreed with Dr. Campbell that the diagnosis of gastric ulcer was often a matter of considerable difficulty. He had made the diagnosis in some of the reported cases and had not been

quite sure that he was correct. If there was no hæmorrhage and only pain, the condition might be due to various troubles, but it was always safer to take the worst opinion regarding these doubtful cases, especially as regarded treatment. Of course Dr. Cantile had not had time to analyze correctly the treatment that had been employed, but the speaker thought the question of diet was often a difficult one; although hyperacidity was generally the rule, one found that many of these patients would not take nitrogenous food, but insisted on taking the food which was theoretically the worst for them, and yet they got on fairly well. The speaker wished to know from Dr. Adami regarding the frequency and importance of secondary infection of the parotid gland. Quite recently he had seen two cases of gastric ulcer, where suddenly a suppurative inflammation of both parotids had set in, and he could remember two other cases where the same form of septicæmic inflammation of the parotids had occurred.

Dr. Lapthorn Smith, speaking in reference to the remarkable frequency of this disease in women, drew attention to the reason commonly given of tight corsets constricting the stomach and exerting sufficient pressure to interfere with the circulation and produce a local necrosis. Another point was that women were more liable to suffer from indigestion; this might be one of the factors in domestic servants. Dr. Smith questioned whether the very tight belt used by sailors, who were mentioned by Dr. Finley as especially prone to the disease, acted in the same way as tight corsets. The remarkable success of operative treatment in these cases was wonderful, but no doubt the difference was very marked between a general peritonitis due to perforation in appendicitis and that due to perforation of the stomach.

Dr. W. F. Hamilton asked if the subsequent history of many of the cases had been followed up. He had had occasion to see from time to time two of the operative cases and both in remarkably good health. He could recall also another case with severe exhaustive hæmorrhages in which the subsequent history was thoroughly satisfactory.

Dr. F. J. Shepherd drew attention to the fact that even where the symptoms were quite characteristic the surgeon might find no ulcer. He had opened the stomach in a case in which there was bleeding, vomiting, pain and inability to retain food at all, and found absolutely nothing but minute bleeding points, no erosion. He had seen two other cases with similar symptoms and yet at post mortem nothing had been found in the way of an ulcer.

Dr. G. E. Armstrong said that the question of this form of bleeding from the stomach was very interesting. The late Dr. Wyatt

Johnston had told him that he had performed autopsies upon patients who had bled to death from hæmorrhages from the stomach and yet could not really say where the blood had come from. He had himself come across similar conditions in operating for hæmatemesis. One sometimes found a little oozing here and there, and on touching it up with the cautery the hæmorrhage was easily arrested and did not return. In other cases there was sometimes a patch the size of the hand, and in others again the stomach looked as if one had taken a knife and made a sharp slit, and there was oozing from that fissure. Dr. Armstrong also drew attention to the value of a gastro-enterostomy on the posterior wall in many of the hæmorrhagic cases, as it gave the stomach rest and secured perfect emptying of the organ. He thought it would be interesting if Dr. Cantile could furnish the figures to ascertain the length of time symptoms had existed of the disease before the hæmorrhage or perforation had occurred, whether in the first few weeks, months or years. He knew of one case of hæmorrhage where the history extended over nine years. He would also like to know whether there was any relation between the length of time elapsing after taking food before the onset of the pain and the situation of the ulcer.

Dr. Adami agreed with Drs. Armstrong and Shepherd, that there might be oozing of blood from the greater vessels of the stomach without anything that could be properly spoken of as gastric ulcer. In a post mortem lately he had seen similar oozing in the jejunum with but slight injection of the mucosa and absolutely no sign of any vessel or anything to show where the blood came from. With regard to Dr. Stewart's question about the occurrence of parotitis, he had never come across the condition and was ignorant in regard to it.

Dr. Armstrong, within the past twelve months, had had one case of hæmorrhage from the stomach operated on, which was followed by suppuration of both parotids with bursting into the middle ear and perforation of the drum. Another case was that of a young lady with acute appendicitis, who also suffered during convalescence after operation from suppuration in both parotids.

Dr. Shepherd had seen the same condition in connection with injuries to the intestine.

Dr. Cantlie, in reply to Dr. Finley's question regarding the examination of the stomach contents, said there were so few cases on record of passing the tube that he did not record them. He had not made the diagnosis, simply including all those on the records as gastric ulcer. Of the post mortems performed, there were only two, in one of which

an enormous perforation was found, and in the other multiple erosions. He was unable to answer the other questions.

A Recovery after Typhoidal Perforation.

Dr. Elder read the report of this case. See page 98.

Dr. Armstrong believed that the figures of recovery after typhoid perforation were improving, and that we could claim that perforation of the intestine in typhoid fever was not always fatal. This case was interesting because the operation was beyond the 12-hour limit, which had been a very marked dividing line in the Montreal General Hospital cases. The total recoveries, the last time he had worked out the figures, were 18.18 per cent., and in cases operated upon before 12 hours, 40 per cent. Dr. Armstrong went on to say that the more he saw of these cases the more he felt that he must look for some disappointments because of the difficulty of diagnosing a perforation in many instances. A case of perforation had occurred within the week where there had been no variation of pulse for hours, not a half degree variation in temperature, no variation in blood count except a lessened leucocytosis, soft abdomen, movable tenderness giving every characteristic of being more due to flatulence or a colicy condition of the bowels, and a tenderness which would permit of very great pressure without much discomfort. He had operated without finding perforation in two cases in which the symptoms were more marked than they were in this case, which had perforations; in one a leucocytosis of 15,000 had developed within four or five hours and in the recent case it rather lessened. Incision was made with a very dilute solution of cocaine about 6 or 8 hours after perforation, and the condition being found the operation was completed under ether. Thus the symptoms were very often vague and if one waited until definite symptoms declared themselves the chance of cure might be passed. In such cases the speaker advocated opening the abdomen with local anæsthesia under cocaine as avoiding shock, and, in the event of there being no perforation found, the unpleasant effects of general anæsthesia.

Dr. F. J. Shepherd was not satisfied that the case reported was one of typhoid perforation, unless it were possible for an ulcer to remain in the bowel for some years. The rapidity of recovery after operation was also against it. He denied the claim that operation for perforation improved typhoid fever, and referred to three of his published cases, in two of which the after course of the fever was unaltered by the operation. He was not such an advocate of cocaine as Dr. Armstrong, believing that ether did not do harm even if there

was no perforation found on opening the abdomen. Speaking of the Widal reaction, he felt that it was sometimes not obtained in typical cases.

Dr. Finley agreed with Dr. Shepherd that one must feel a little sceptical about this being typhoid perforation. He thought that the perforation took place about the eighth day, and the subsequent history and absence of Widal reaction were against its being typhoid fever. At the same time he could not suggest any satisfactory explanation.

Dr. Reilly, in reference to Dr. Armstrong's point about the 12 hour limit of time for a successful operation after perforation, recounted a case in which recovery took place when operation had not been done until 19 hours after perforation, but as the disease had run a comparatively mild course it might be that the time under which a successful result might be expected would bear some relation to the severity of the disease.

Dr. Adami said it was difficult to see what other form of ulceration could be present in this case; the fact that the ulcer was opposite the mesenteric attachment, the age of the patient, the possibility of a second attack of typhoid and of an attack in which only two or three Peyer's patches were ulcerated, all had to be taken into account. It had to be kept in mind that the Widal, or Widal-Grünbaum reaction is not absolute. It is not obtained in absolutely every case of undoubted typhoid. There is a margin of five per cent. or so of typical cases of the condition which do not exhibit it.

Dr. Elder thought the theory that this might have been an old ulcer persisting from the former attack of typhoid was more open to doubt than his own diagnosis. The character of the ulcer and its position, together with the history of the case led him to stick to his diagnosis in spite of the absence of the Widal reaction.

Stated Meeting, January 16, 1903.

H. S. Birkett, M.D., President, in the Chair.

A Case of Metastatic Parotitis.

Dr. Lapthorn Smith exhibited a patient with this affection.

A woman, aged 56 years, came to the Western Hospital a year before for some bladder trouble. Menstruation had stopped two years before she sought advice. She had no children. She was put under Dr. Smith's care, and on examination found to have a pretty large fibroid tumour which was removed by abdominal hysterectomy. The patient was making a very even recovery when pain in the left parotid region was complained of. The temperature was mostly normal, never going

above 100½° F., and the pulse ranged between 80 and 85. About the time that this trouble developed in the parotid gland she began to have strange mental symptoms, though a French woman and having slight knowledge of the English language, she persistently refused to speak French. This continued for three weeks, when she just as suddenly recovered her power to speak French again. The next three weeks she had other forms of delusions.

The speaker said that he had put this down as a case of metastasis; older writers stated that there might be a sudden show of inflammation in a distant part, while modern ones hold that there was proneness for inflammation to extend by recognized channels. In Whittaker's Practice of Medicine, Babinsky reports three cases of mental aberation after operation on the genital organs of women, and it would seem that this condition was not uncommon. In his own case there was suppuration, although there was no such condition present in the genital organs, and no evidence of pyæmia or septicæmia.

Dr. Chipman asked if Dr. Smith had done a supravaginal amputation or total hysterectomy. The cases of suppurative parotitis were not so frequent after abdominal operation. He had seen three and thought that in all of these there was actually a suppurating focus somewhere at the seat of the operation, and that might be the explanation in Dr. Smith's case. Although there was not much indication for this view, one could get a slight slumbering infection without any signs or symptoms at all. His reason for asking the question was that when the abdomen was opened and the cervix removed there was much less liability to slow infection.

Dr. Smith in reply said that in this case he had removed the uterus down to the internal os which he had left.

A Case of Congenital Cardiac Disease.

Dr. H. S. Shaw read the report of this case as follows:—

M. D., female, aet 12, was at birth small but breathed well. First trouble was noticed when one week old, the child on being tossed into the air becoming suddenly markedly cyanosed. This quickly passed off and apart from that she enjoyed good health until 1½ years old, when she developed whooping cough and from then on had blue lips and fingers with dyspnœa, and the further development was very slow. She learned to walk at 2½ and from this on during childhood she was a chronic invalid, the slightest exertion causing dyspnœa. She only attended school for one month being drawn to and fro, because unable to walk. In spite of her condition the child grew quite tall for her age, but was very thin. During the past summer she was at her best,

and while living in the country could take short walks with occasional rests by the way, until she developed measles. About Christmas she complained of headache and pain in her back, kept to her bed now more than usual, and then was taken ill with slight pyrexia, headache, vomiting and constipation.

The cardiac examination showed slight enlargement of the præcordial dulness to the right, and a harsh systolic murmur heard all over the præcordium, with maximum intensity at the pulmonary cartilage. Temperature 102° F., pulse 100, pain in the back of the neck and down the spine. Patient then sank into a stuperose condition, from which she would suddenly awake and cry out with the pain in the neck. Kernig's sign was definitely present, the urine scanty and highly albuminous. A few hours before death loss of vision occurred.

Dr. W. F. Hamilton when first he saw the patient recognized that it was most likely congenital cardiac disease with a superadded condition involving the brain, possibly cerebro-spinal or tuberculous meningitis. The course of the case was rapid and after death an examination of the heart only was permitted. The following is the description of the heart:—

This heart shows briefly the following things: It is considerably hypertrophied and shows marked enlargement of the ascending aorta. The apex of the heart is greatly rounded and participated in by both ventricles. The right ventricle is greatly hypertrophied and the right auricle is also greatly dilated. There is a defect in the interventricular septum. One close examination I found the pulmonary artery and its orifice gratly stenosed, indeed it was impossible to put anything through it except a very small probe, and on opening this artery through the valvular orifice we found the valve greatly thickened and consisting of two cusps. Dr. Adami very kindly examined the specimen and described an acute endocarditis involving the misformed pulmonary artery. The conus arteriosus presents considerable narrowing, and the parietal endocardium is thickened at this point, showing a very marked form of endocarditis. There are, then, three special deformities here, the persistent foramen ovale, hypertrophy and especially enlarged right ventricle, the enlargement of the right auricle, and the pulmonary stenosis.

Dr. Hamilton went on to say that he regretted not having got further down the aorta and not having looked carefully for the ductus arteriosus. The case was found in a female, and therefore somewhat an exception to the rule, as 64 or more per cent. of these cases were found in males. The explanation of the condition was likely that there was some defect present from birth, and with the onset of whoop-

ing cough a more serious condition developed. Cyanosis and clubbing of the fingers were found specially in pulmonary stenosis, the former being rarely attributed to defective septum. The condition of the admixture of blood was one of the old theories to account for a marked stenosis, but Morgagni's theory afforded the most ready explanation. The speaker concluded that patent ductus arteriosus did not exist from the absence of the characteristic murmur and the presence of so much cyanosis. At the autopsy the lungs had been examined for pulmonary tuberculosis, bearing in mind Peacock's evidence of the frequency of congenital cardiac lesions being complicated in this way. As already said, he had suspected meningeal inflammation, but on looking more carefully into the literature had seen that the symptoms might all be accounted for by the congestion of the brain due to the congenital defect.

Dr. Adami discussed the question as to whether the pulmonary condition and the deficiency of the septum were to be regarded as of coincident development or whether the second should be regarded as the result of the first condition. Just as in the genito-urinary system when one portion is defective another is also liable to be imperfect, so, in the heart, one imperfect development has frequently associated with it others which do not appear to be directly related. But on the other hand, a congenital stenosis of the pulmonary orifice would undoubtedly help to prevent the natural closing of the interauricular and interventricular septa. In this case undoubtedly the pulmonary condition was of primary development for the valve was formed of only two cusps. On the top of the narrowing produced by this condition there was evidently added an endocarditis which had still further ruduced the orifice until, at the time of death that orifice would barely admit a small probe. This orifice seemed too small to allow sufficient blood to pass through to the lungs to support life, and it might be that this defect had been remedied by the persistence of a ductus arteriosus. Nevertheless, in the specimen, he could recognize no process of such. His experiments with the late Professor Roy, conducted now some years ago, had shown how the normal heart could overcome an extraordinary amount of narrowing of the aorta and could preserve the blood pressure in the arteries beyond that point of narrowing. The enormous hypertrophy of the right heart in this case might enable a much larger amount of blood to be pumped through into the lungs than one would suspect from the size of the opening. While, as he has already indicated, it must not be taken for granted that the orifice had always been so small: it had been materially reduced by progressive endocarditis.

Dr. Maude Abbott stated that among the collection of defects of the septum in the museum of the McGill Medical Faculty were two hearts which she thought of some interest in this connection. One was the heart of an infant aged 14 days from a post mortem performed by Dr. Osler in 1880, and pictured in the Montreal General Hospital reports of that date. A somewhat similar condition to Dr. Shaw's case was shown, in that the interventricular septum was defective at the same point and there was atresia of the pulmonary artery, which seemed to be seated above the valves, but brought about the same result, namely, stenosis of the pulmonary. There was a patent foramen ovale with much enlarged right auricle, and dilated and hypertrophied right ventricle. The defect in the interventricular septum was closed in by a false valve, apparently a mass of vegetations, and was anchored to the wall by two cords which present themselves as false chordæ tendineæ. The point of interest seemed to be that though the infant was only 14 days old the defect of the septum and atresia of the pulmonary artery were present, an argument against defects of the septa being due to rupture of the wall later in life in the case shown by Dr. Hamilton. The other heart was one placed in the nucleus of the museum by Dr. Holmes in 1824 and showed complete defect of the interventricular septum. A full illustrated report of this case appeared in the Journal for

Dr. Lapthorn Smith asked Dr. Adami if the trouble did not probably begin as an endocarditis sometime during intra-uterine life.

Dr. Adami, in reply, pointed out that the fact that there were but two cusps showed that there had been a narrowing of the pulmonary artery and of the valve from the onset, so the trouble had not begun here as an endocarditis. Endocarditis of the valves was well known to affect those subject to the greatest strain and in such a case as this the congenital deficiency would undoubtedly favor the development of an endocarditis of the pulmonary valve.

Dr. Shaw had enquired into the history, and could find nothing that would throw any light from either side of the family.

A Case of Ectopic Gestation.

Dr. Lockhart gave the following notes of a case and exhibited the pathological specimens of the excised parts.

The patient, married, 55 years of age, had complained for the last eight or nine years of very severe attacks of pain just below McBurney's point. These attacks had been fairly frequent and she had had the last severe one in December, 1902. Seventeen years previously she had what was diagnosed at the time as ectopic gestation and the ovum

was killed by the application of electricity. After this she had complete freedom from pain for eight years when these severe attacks came on and continued up to the present.

Puberty had occurred at the age of 13, menstruation regular every four weeks, lasting 5 to 7 days, profuse in amount, but accompanied by little pain. She had four full time children, the last 27 years ago, the labours having been perfectly normal.

On examination the perineum was found lacerated, there was collapse of both vaginal walls, cervix soft, small and low, and in the right fornix could be felt a mass in the pelvic wall, which was removed.

The specimen was apparently one of a fœtus several months old, certainly five or six months. It was very hard and distinctly bone-like in consistence, except in one or two places. At one part there was a distinctly curved bony prominence which was composed of various laminæ, the fœtal spine; radiating out from this were fine bony spiculæ, the ribs; in another part a humerus, and below that a radius and ulna. The other mass, which was soft, was probably what was left of the fœtal brain. The other specimen removed from the same patient was the vermiform appendix, which showed slight constriction just above the centre.

Dr. Lapthorn Smith said he had operated upon a number of such cases and at one time the use of electricity for the purpose of destroying the life of an ectopic gestation had been looked upon as a great discovery.

THE

Montreal Medical Journal.

A Monthly Record of the Progress of Medical and Surgical Science.

EDITED BY

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VOL. XXXII. FEBRUARY, 1903. No. 2.

SMALL-POX AND VACCINATION

The paper by Dr. J. E. Laberge, which we publish in the present number of the "Journal," while presenting no new light upon the subject, should serve to rouse the profession to the existing state of apathy towards the continued presence of small-pox in our midst. It comes as a timely warning of the dangers associated with the existence of a few cases of even the mildest form of small-pox in the City or country districts. As has been time and again pointed out, there is a tendency in even these more or less benign forms of the disease, for the virulence of the epidemic to increase rather than to decrease, and this has actually been observed to be the case during the latter part of the present epidemic in some of the cities of the neighbouring Republic. Then, again, the very mildness of the present epidemic is a source of danger; familiarity breeds contempt, and while the lesson of 1885 must surely have given our citizens a true appreciation of the power of this terrible scourge, the present experience serves in great measure to allay their fear of it. The general willingness to submit to vaccination which has been such a noted feature of the past two

years as compared with the strong outcry against it in 1885, was due, we believe, in great measure to past experience, and with the waning fears of the disease, if not the old fanaticism against vaccination, at least a spirit of indifference, will arise. There is every reason, then, as Dr. Laberge insists, for the passage of a compulsory vaccination law, now while the disease is under control, and so to insure for all time, or for as long as this law shall remain enforced, that small-pox shall never again be able to get such a hold upon the community as it did seventeen years ago. The enactment of such a law, which comes within the powers of the Provincial Legislature, can only be procured by the influence of the profession as a whole.

The statistics furnished by Dr. Laberge in his paper of the number of vaccinated and unvaccinated persons who were admitted to the Civic Hospital suffering from small-pox are most conclusive evidence of the efficacy of thorough vaccination and revaccination, and will appeal to the public far more than those obtained from outside sources not because they differ from the figures as reported elsewhere, but they indicate its value here, at home, in the Province of Quebec, under conditions with which they are acquainted. Of the 503 cases of small-pox treated in the Civic Hospital, 446, or 88 per cent., had never been vaccinated ; and 44 had been vaccinated but once in childhood and showed one bad mark, thus making 97 per cent. not properly protected. Of the remaining cases, those with one good mark numbered 9: and 4, according to their own statement, had been vaccinated within seven years. Against this, we are told that, of the 44 attendants exposed to the disease and protected only by vaccination properly done not a single one contracted it. The nine reported cases of small-pox in persons having one good mark bear out the contention that a greater degree of protection is afforded by two or more vaccination marks.

The McGill Graduates' Society of the District of Bedford held their Annual Meeting and Banquet in Cowansville on the 30th of January, 1903. There was a very large representative gathering of McGill Graduates. Principal Peterson was present to represent the University, Dean Walton to represent the Faculty of Law and Dr. Armstrong the Faculty of Medicine.

Mr. McCaskill, the President, occupied the chair and the success of the meeting and the enthusiasm manifested were in large measure due to his great interest and genial manner. The scholarly address of the Principal was one of the features of the evening. He impressed upon the Society the high quality of the work done at McGill and

the important place occupied by the University in educational work in Canada.

Dean Walton and Dr. Armstrong gave an outline of the advances made in their respective Faculties and of the hopes entertained for even greater things in the near future. In reply to the toast of the Empire and Canada, proposed by Mr. Nutting of Waterloo, Judge Lynch gave a most eloquent address. He briefly reminded his hearers of the immense resources of our great country and of the rapid strides it was making in all departments of trade and industrial development.

Addresses were also given by Dr. Catton, Dr. Macdonald of Sutton, the President elect, and by Mr. Palmester the Federal member for Shefford. Mr. Baker, the Secretary, came in for great praise for his untiring energy in getting together so many members and so excellent a programme.

Among the medical men present were Dr. Martin of Waterloo, Dr. Fuller of Cowansville, Dr. Green of Freylesburg, Dr. Oliver of Cowansville and Dr. McCorkill of Farnham.

FOR QUARTER ENDING JANUARY 31st, 1903.

STATISTICS.

Number of readers,	3,950
" " Days the Library was open,	77
" " Holidays Library was closed,	0
" " Public Holidays Library was closed,	2

ACCESSIONS.

" " Volumes bought,	37
" " Pamphlets bought,	0
" " Volumes given,	253
" " Pamphlets, reports etc., given,	423
" " Books taken out for home use,	1,217
" " Journals and pamphlets taken out,	272

November, 1344 Readers.
December, 1,310 Readers.
January, 1,296.

FROM NOV. 1st TO JAN. 31st, 1903.

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Engman, M.F., M.D.	1
Freer, Paul C., M.D.	1
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Journal American Med. Association	1
Leftwick, R. W., M.D.	1
Lynch, F. W., M.D.	1
McFarland, J., M.D.	2
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McCallum, D. C., M.A.	1
Madras Government	1
Punton, J., M.D.	1
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Roebuck, J. R.	1
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EUSTACHIUS.

BY

R. JEFFREY MCMEEKIN.

Bartholomeo Eustachius was an Italian and next to Vesalius the most noted anatomist of the 16th century. He was born at San Severino, in 1520, and died at Rome in 1574. His earlier life history is very obscure and even his later life is not well known with the exception of his works on anatomy.

In the controversy on Gallenic anatomy he was the principal opponent of Vesalius and associated with him was Engrassius of Naples, the most accurate osteologist of his day. He rebuked Vesalius for asserting that Galen had described a monkey instead of a man, and then himself described the kidney of a dog without making the fact known that it was not a human organ.

Eustachius was City-physician and Professor of Anatomy at Rome and Physician in Ordinary to the Popes. An an anatomical author he was known principally by his work "The Controversies of Anatomy," but as some of his works were lost and others were stolen he may have written others equally valuable. In his "Opuscula Anatomica," published in 1564, he describes the tube leading from the middle ear to the pharynx, which he had discovered in 1562, but he says this was known to an ancient Greek, Alcineon. (It was also described by Aristotle about 350, B.C.). However, it appears that Eustachius was the first to fully describe it, and even he supposed it to be for the purpose of allowing pus to escape and the introduction of medicines into, the ear. In this work also he promises to give a full account of "human" anatomy on copper plates. Unfortunately he died before he had time to publish them, and they then became lost and were not found until 1712, and were published by Lancisei in 1714. These plates, while being better than anything of the kind before attempted, were not very accurate on account of the author having to draw a certain part from one subject and another part from another different subject and then uniting these into one whole drawing. This

may be accounted for by the fact that he was not a dissector. The excuse that he gives for this is that his health was bad, and also that it was hard to get material.

Eustachius' name has only been given to the Eustachian tube and valve, but he also discovered the stapes, maleolus, membranous cochlea, tensor tympani, origin of the optic and sixth nerves, and suprarenal glands. He also made researches in embryology, especially of the teeth and kidneys. He was the first to give an exact account of the thoracic duct, muscles of the neck and throat, uterus and the pulmonary veins. He also noted that the course of the cardiac veins was oblique and not transverse as described by Vesalius. He applied his knowledge of anatomy to pathology, but none of his works lead us to believe that he applied it to the treatment of disease.

MALPIGHI.

BY

W. L. McDOUGALD.

Marcello Malpighi was born near Bologna, in Italy, on March 10, 1628. His youth was devoted to the study of Latin and Physiology, and being left to his own discretion at the age of twenty-one by the death of his parents, he chose the profession of Medicine. His choice was prompted by Prof. Franciscus Metalis, who was his teacher and counsellor for some years. He graduated from the University of Bologna in Medicine in 1653. The thesis sustained by Malpighi on the occasion of taking his degree was in defense of "The Opinions and System of Hippocrates." This was regarded as a bold procedure, as the doctrines of the Arabian school were chiefly entertained and professed.

The University of Bologna at this time enjoyed a great reputation as a school of medicine and Malpighi greatly distinguished himself as a scholar. At Bologna he held the position of professor for a short time after 1656. On the invitation of Ferdinand II., Grand Duke of Tuscany, he left here to accept a position at the University of Pisa. Here he formed the acquaintances of Borelli, renowned for his research and advocacy of the mechanical philosophy. From his association with this man he learned the advantages of experimental research over the purely metaphysical. They worked together, and one of their important discoveries was that the muscle of the heart was of spiral form. Unfortunately the climate of Pisa was unfavourable to his delicate health and he resigned after three years had elapsed.

He returned to Bologna to resume his former duties and again

quitted it for Messina, where he accepted the professorship of Medicine. He was unwilling to leave Bologna, but yielded to the urgent entreaty of his friend Borelli. Here he stayed for four years, but at the end of this time he returned once more to Bologna, although the Senate of Messina tried to persuade him to remain. But the persecutions he had endured from the blind adherents of the ancient doctrines, from the jealousy of his colleagues, and from the controversies in which their disputes involved him, made him decide to retire to Bologna, where he carried out those anatomical and physiological enquiries by which his name has become famous.

Among these were treatises on: The Structure of the Lungs and of the Pulmonary Circulation by the use of the Microcscope; treatise on the Brain, Sense Organs, Rete Mucosum or Malpighian layers of the skin; on the Viscera; on the Analysis of the Blood; and on the Anatomy and Transformation of Minute Insects.

In 1668, Malpighi was elected an honorary member of the Royal Society of London. This honour was much appreciated by him and he was greatly flattered by the distinction. His autobiography was addressed to the Presidents and Fellows of the Royal Society with whom he maintained a constant correspondence. He communicated to them the results of his researches, announced to them his discoveries, and presented them with his portrait.

In 1683, he received from the University of Bologna a most flattering remark of the regard entertained for his talents and services in the form of a Eulogium in Latin, which was engraved on marble and placed in one of the public schools of the University.

In 1691, Pope Innocent XII., sent for Malpighi to come to Rome, and made him his chief Physician and Chamberlain. This position he occupied, however, for only a short time. He was subject to attacks of gout, and on the 25th of July, 1694, he had a fit of apoplexy, by which he lost the use of half of his body, and in November of the same year death released him from his sufferings at the age of sixty-seven. His remains were embalmed and taken to Bologna and there interred with great pomp and all funeral honours in the church of St. Gregory, where a statute is erected to his memory. It is reported that two pounds of coagulated blood were found in the ventricles of his brain.

The only portrait ever executed of Malpighi was by the celebrated Tabor, who skillfully depicted his serious and melancholy temperament and his highly intellectual countenance. He lived at a time when nature was studied rather than books, and his keenness of observation

and great originality showed a powerful insight into the kingdom of nature. His contemporaries have described him as a man no less distinguished by his physiological zeal than by his singular modesty.

His name will always be impressed on the mind of the medical student by his description of the minute anatomy of the kidney and spleen, whose corpuscles bear his name.

MORGAGNI.

BY

WALTER C. McMURTRY.

John Baptist Morgagni was born at Forli, in Italy, on February 25, 1682. At the age of sixteen he began the study of medicine at the University of Bologna, and in 1701, graduated with the degree of Doctor of Medicine and Philosophy. Among his teachers were the celebrated Valsalva, Albertini and de Sandris. With Valsalva he formed a life-long friendship.

Soon after graduating, fears were entertained for his eyesight, and he returned to his native place, where with proper attention his eyesight was restored. Returning to Bologna he assisted Valsalva in his anatomical researches on the ear, making the greater number of the preparations described in that valuable work "De Aure Humana." During Valsalva's absence from Bologna, Morgagni filled his place and became exceedingly popular as a lecturer, being eloquent in discourse and illustrating his subject by a great variety of preparations.

Desirous of increasing his store of knowledge, Morgagni visited Venice and then Padua. After attending the lectures of the most celebrated teachers he returned, and for a time practiced his profession at his native place. Finding that here the sphere of his utility was too contracted, he returned to Padua. In 1710, one of the chairs of anatomy became vacant, and in 1711 Morgagni received the appointment. At this time he contracted a lasting friendship with Lancisi, and assisted him in his Explanation of the Labours of Eustachius. In 1715, by the death of Molinetti, the First Chair of Anatomy at Padua became vacant, and the same year the Senate of Venice appointed Morgagni to the professorship. He held this until his death in December, 1771.

Although his requirements extended beyond medicine into literature and history, his chief object of study was anatomy and his whole life may be said to have been devoted to its elucidation. The value of his researches was acknowledged during his life time and his name was

enrolled as a member of the Royal Society of London, 1724, and the Academy of Sciences of Paris, 1731. He was also made a member of the Imperial Academy in St. Petersburg, in 1735, and of the Academy of Berlin, in 1754. He was also one of the first associates of the Institute of Bologna. In short, his fame spread throughout Europe. Few men secure for themselves more friends or receive greater attention from those who were distinguished by rank or intellect than did Morgagni.

It is impossible to enumerate the writings that came from Morgagni's pen, which was never idle during the seventy years that elapsed between his taking his degree and his death. He wrote on Archæology, history, geography and philology, as well as medical subjects. His chief works were: "Adversaria Anatomica," published in 1706, the Epistolae Anatomica," and his great work "De Sedibus et Causis Morborum," which laid the foundation of pathological anatomy.

His name in anatomy is found associated with the Column of Morgagni, Hydatid of Morgagni, Sinus and Valve of Morgagni.

SCARPA.

BY

W. A. L. STYLES.

Antonio Scarpa was born of Italian parents at Motta, in Lombardy, June 13, 1747, and died at Pavia, October 31, 1832. He pursued a course of medical studies at the University of Pavia, where from the first he inclined to anatomy. So ardent were his studies in this branch of learning that by his second year he was appointed an assistant demonstrator under the celebrated Morgagni, and later, in conjunction with Calza, Scarpa prepared a series of wax anatomical preparations. He next went to Bologna to take a course in surgery under Riviera, after which he returned to Pavia to receive his degree as Doctor of Medicine, which was conferred by Morgagni himself. After the latter's death in 1771, Scarpa, at the early age of twenty-four, was appointed to the vacant chair of anatomy and surgery at his Alma Mater, which office of honour he ably upheld for eight years. After handing in his resignation, he undertook a two years' tour of France and England, in which latter country he continued his studies under Hunter and Seldon. In 1783, he was persuaded to accept his former charge at Pavia, and in the following year, in company with Volta of electrical fame, made a second tour of Europe.

In 1796 he was compelled to hand in his resignation as Professor of Anatomy and Clinical and Operative Surgery, which post of duty

he so worthily occupied for upwards of twelve years, to his own credit and that of the University at large, on account of his having refused to deliver a compromising address at a certain public reception. Not until 1805, when Napoleon was crowned King of Italy at Milan, was Scarpa reappointed to his former office. It chanced that the great General was paying his respects to the professoriate of the University when incidentally he enquired the reason of the absence of Scarpa from the gathering. Much to his surprise he was informed that the famous anatomist had been dismissed from the teaching staff of the University and that he no longer held any chair in the faculty. This so incensed Napoleon that he caused Scarpa's reappointment, and endeavoured to efface the disgraceful conduct of the governing body of the college by conferring on him, as a mark of his esteem, the Cross of the Legion of Honour and a purse of four thousand francs. Becoming advanced in age, Scarpa handed in his resignation in 1812, whereupon, as a token of the regard in which he was held, and as a recompense for the celebrity he had brought upon the University, he was appointed Professor Emeritus and Dean of his Alma Mater. It was in this latter capacity that Scarpa again stirred up some bitter feelings, for it appears that he had planned some few innovations as regards a revised and modern curriculum, and these designs so enraged the fog-bedimmed minds of a certain faction that they were instrumental in causing his final dismissal from all offices within the gift of the University.

During the last five years of his mortal career Scarpa suffered untold torture from renal calculus and a chronic inflammation of the bladder, and finally he gave up from sheer exhaustion to his malady in 1832, at the advanced age of eighty-two.

Scarpa was undoubtedly the personage to whom surgery and anatomy is most indebted. He contributed largely to the promotion of science by his numerous publications, of which upwards of fifty-one are extant, and as a practitioner, whose advice was eagerly sought after from all quarters of the Old World, he was justly celebrated. To him we owe much of our present day knowledge of aneurisms, hernia and neurology. As an ophthalmologist he is famous as being the discoverer of the macula lutea, and as having devised an operation for the removal of cataract, and another for the cure of abnormal pupil by detaching the iris. His name had been given to certain regions and structures in anatomy to commemorate his investigations in these areas. As an eloquent and erudite practitioner his presence was much sought after by medical societies both at home and abroad, and so expert was he

in the art of drawing that it was his custom to illustrate his varied volumes with his own sketches.

He accumulated a vast fortune by the practice of his profession and this amount was further augmented by his innate frugality. We have much by which to remember Scarpa; and although some of his views are to-day untenable and are superceded by the more modern theories of an advancing science, nevertheless he, by his untiring zeal in investigations, was instrumental in placing anatomy and surgery on the lofty pedestal which they occupy at the present day.

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Original Communications.

ON THE USE OF ROENTGEN RAYS IN MEDICINE AND SURGERY.*

BY

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In December, 1895, Professor Roentgen, of Wurzburg, first announced the discovery of certain rays which emanated from an excited Crookes tube enclosed in a cardboard box, from which box no light was visible, but some platino-cyanide of barium which he happened to have, gave out a fluorescence when brought in the vicinity of the box. On further investigation he found this fluorescence was due to certain rays emanating from the tube which penetrated the walls of the box in which it was enclosed, and when further examined he found that these rays could pass through certain materials whilst they would not pass through others, and that when platino-cyanide of barium was spread on a card and held up near the Crookes tube when excited, platino-cyanide became luminous. and that when any substances, some opaque, some transparent to these rays were interposed between the tube and the platino-cyanide, a shadow picture of the opaque bodies was seen. These Crookes tubes may be excited by either a static machine or a Rhumkorff coil.

There are any number of static machines; the old frictional machines in which the electricity was developed by friction of glass cylinders, or plates or ebonite plates, these have given place to the induction machines, which are all based on the old electrophorus, in which a plate of resin or sulphur, or both, in a tin dish was excited by rubbing with a cat's skin, and then placing a metallic plate on the plate of resin and then touching the upper surface. The metal plate became charged with

* Read before the Canadian Medical Association, September, 1902.

positive electricity which could be carried by an insulated handle to a leyden jar, and a charge could be put into the leyden jar. This process repeated *ad infinitum* would go on storing up a charge until at last the ledyen jar contained a considerable charge. The various induction machines are made on this principle so that a constant supply of electricity is produced, and carried off to be made use of. One side of the plate is negative and the other positive. These machines which used to consist of but one pair of plates are now made up of large numbers and considerable sized plates up to six feet. Lord Blythewood, in Glasgow, has a machine of 120 plates, the largest in the world. Instead of being driven by hand they are driven by dynamos at from 300 to 400 revolutions per minute, so that practically any amount of electricity may be obtained from this source of high tension ready to illuminate one of these tubes. The charge in this tube can be regulated by the length of the spark gap in the circuit, the longer the spark gap is, the greater the amount of electricity passing through the tube at the time and the number of sparks are so numerous that the light from them becomes continuous and almost without a flicker.

An induction coil consists of a coil of copper wire wound around a central core of soft iron and consisting of comparatively few turns from 100 to 200 according to the size of the coil and requirements, called the primary. Outside this and carefully insulated from it, is wound a coil of exceedingly thin wire of many turns, some thousands, called the secondary coil, the primary and secondary together constituting the induction coil which is excited by a pulsating or interrupted current. At every pulsation or interruption a current of electricity passes through the primary and produces an induced current in the secondary, and the intensity of this current is regulated by the ratio of the number of turns of the secondary to primary. The terminals of the secondary are attached to the terminals of the Crooke's tube, and for every pulse of current in the primary a spark is passed between the terminals of the tube. These sparks are so numerous that they give the appearance in the tube of continuous light.

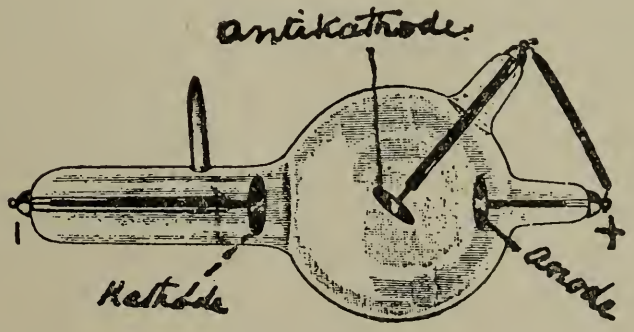
From either of these sources the electricity is obtained, and many are the arguments pro and con as to which is the better. If any of you are desirous of going into the apparatus for yourselves I shall be glad to give you all the information I can, but it is not necessary to enter into all these arguments at the present moment. Either source of electrical excitation will answer for the present consideration, and both are used and have their staunch friends.

The rays which are known as X-rays are not luminous themselves, in fact, are invisible. They penetrate through many substances such as

wood and its elements, metallic or otherwise, of low atomic weight, the elements of low atomic weight being pervious or transparent to these rays, whilst the heavier atomic weight elements are opaque, although in very thin layers they also are transparent.

	Hydrogen.. 1		
Non-metallic	Carbon.. 12	Non-metallic	
Transparent	Nitrogen... 14	Opaque	Iodine 127
	Oxygen.. .. .. ..16 etc.		
	Lithium. 7		Mercury. 200
Metallic	Magnesium... 20	Metallic	Lead. .. ..
Transparent	Aluminum.. 27	Opaque	Silver.... 108
	Sodium.. 23		Gold.. 196
	Potassium. 39		Platinum... 196

Some of the salts of some of the heavier metals are capable of stopping these rays and converting them into light or luminous rays, notably tungstate of calcium or platinocyanide of barium, hence screens can be coated with such materials. Screens of these materials constitute the screens upon which our shadow pictures are produced. Any object placed between the Crooke's tube throws a shadow according to its opacity to the X-rays, thus the skin and flesh are more easily penetrated than the bones, and they in turn vary in opacity according to their density and so also do the other tissues of the body. And the soft parts as well as the bones differ in transparency inversely as their thickness.



Crook's Tube.

The rays emanate from the antikathode plate in the Crooke's tube from a point, as light from a candle, and they diverge from that point in straight lines in all directions in front of the antikathode, forming a hemisphere of rays diverging from a point, and to view an object without distortion it is necessary for the screen to be held in a plane which is normal to some of the radii of that luminous hemisphere. This can be judged of by moving the object slightly to right and left or up and down, and observing that point where the distortion is least, or altering the position of the screen or of the patient to obtain a good view. I have a narrow frame of hardwood placed on legs of convenient height to stand by and lean over, 18 inches wide and six feet long, with

a canvas strained tight on top. Under this I have my tube rigged up on a traveller, which enables it to be placed at any point from end to end or side to side of this couch, and its position can be raised up nearer or lowered from the canvas so that it can be placed with the platinum antikathode vertically under any part of the body. Then, in a room absolutely dark, the screen is placed over the body and any and every part can be examined and compared with the normal. Even the light from the tube should be screened off.

The normal amount of luminous appearance on the screen for the different parts of the body should be first ascertained and then on examination any aberation from normal can be recognized. A normal line or wire should be placed over the patient lying on the couch from head to foot and indicating the median line. A wire with two light weights attached answers well and should be placed carefully along the median line. A similar wire may be placed across the body at right angles to the previous one; a piece of ordinary flexible electric lamp cord answers the purpose and will throw a shadow on the screen.

The *head* it is difficult to see through, so as to show any tumour within the bone, but there may be a difference on the two sides, so that a fore and aft view will show a little increase of thickness or density of the two sides.

The *thorax*. The ribs are seen distinctly, both the back and front portions with the clavicles, scapulæ and shoulder joints. The lungs being inflated are very transparent, and the heart and vertebræ can be readily made out. The movement of the diaphragm is very clear and can readily be compared on the two sides to see if it be normal or reduced. The heart can be seen pulsating and the movements of both auricles and ventricles can be seen well. The roots of the lungs can generally be seen and, if a skiagraph be taken, the larger bronchial tubes can be made out and the great vessels and vertebræ.

Having determined in your own experience the normal condition it becomes easy to determine the abnormal. If there be any affection of the lungs the earliest symptom is decreased movement of the diaphragm on the affected side, increase in density from inflammatory deposits or adhesions.

In pneumonia there is generally some consolidation of the lung on the affected side clearly shown and even localized.

In pleurisy, if there is effusion it shows in a remarkable manner. On examining the patient in a sitting position the liquid assumes a surface level with the floor, and you see the chest completely dark with a perfectly straight line across; but if the patient be placed on the back the lung will float on to the side uppermost and will show more as a trans-

parent patch in the dark background of the liquid. When the patient is sitting up, the level of the fluid may be disturbed by shaking and waves can be seen distinctly passing across the patient, and the pulsations of the heart can be counted by the waves on the surface of the liquid. Thus the condition of the lungs or heart can be easily made out and more especially when there is thickening of tissue or displacement.

In the *abdominal cavity* the viscera are so much more dense and the muscular walls back and front are so much more opaque, that it is much more difficult to make out the condition satisfactorily. Still something can be done. The upper surface of the liver shows and corresponds with the dome of the diaphragm. The stomach can generally be made out as a transparent portion in its proper place; this can often be more distinctly made out by giving a dose of carbonate of bismuth, which throws a shadow more or less the shape of the stomach so that movements thereof and of the intestines can be made out by these means. The kidneys can sometimes be made out but not always, and stones in the kidneys, ureters or bladder may be made out. This depends to a certain extent on the composition of the calculus; cystin is almost transparent, so is uric acid, but the phosphatic or mixed calculi will sometimes show their structure in layers of alternate transparent uric acid or opaque phosphate of lime.

In making a *fluoroscopic examination*, it is necessary to use a fluoroscope or a screen. I have already described the screen which must be used in a dark room, by dark meaning absolutely without light, the patient being placed upon the couch and the tube below. The screen is placed above the patient and a shadow of the body will be seen and by moving it about over the patient the different parts of the body will soon be recognized, taking care that the tube be moved also so as to have the antikathode parallel with the screen. Before attempting to see anything on the screen it is well to remain in the dark for a good ten or twenty minutes or more, so as to allow the retina to recover its activity and to rid itself of previous impressions. After a little practice it will soon be possible to make out the different organs and the medical man who wishes to become a good fluoroscopist must become familiar with the normal appearancs in health.

The nearer the object is to the screen on which the shadow is thrown the sharper will the shadow be, and the further off from the screen the less distinct will be the shadow. Having examined the patient fluoroscopically, or whilst doing so, a piece of celluloid and a bit of tracing paper may be put over the screen, and with a pencil with a metallic point the different organs may be drawn on the thin tracing paper for future reference. If a picture is needed, a photographic plate with

the film side next the light is laid on the patient, with the film surface forming a plane normal to the radii of the light, and a sheet of thick lead laid on the back of the plate to protect the plate from the action of diffuse rays. The plate is developed and fixed as an ordinary photographic plate. The reading of what is seen on the plate must be accomplished with due regard to the picture of health. I have here a number of pictures which illustrate what may be done in this way.

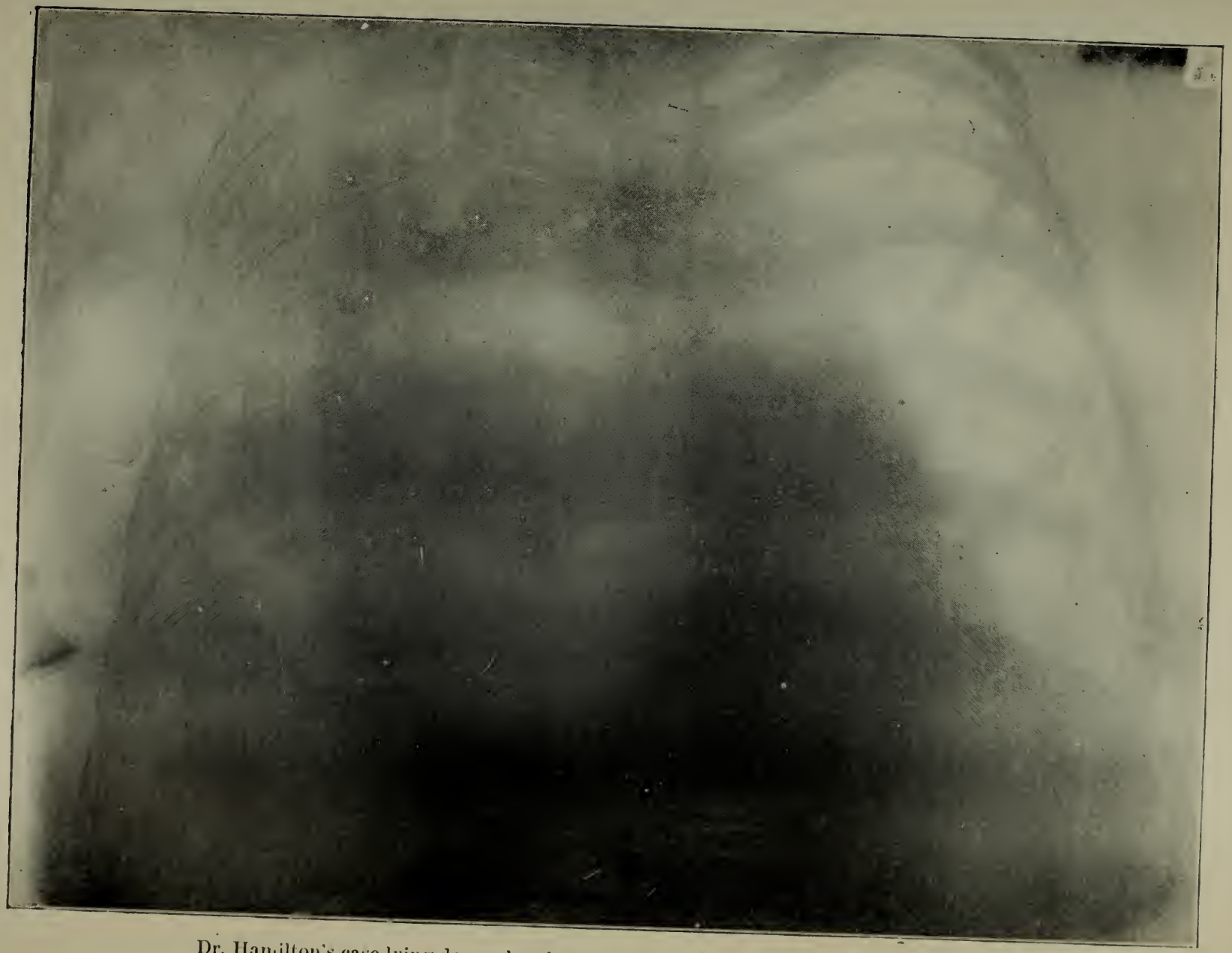
I have taken many of these pictures stereoscopically, and this may be done so as to have a large stereoscope to view them ; or they may be reduced in size so as to see them in a small hand stereoscope.

In *dentistry* the use of the X-rays has been carried to a remarkable point in showing the cavities in teeth, malpositions of the teeth, and abscesses of the socket. Beautiful photographs of teeth taken by Dr. Weston Price, of Cleveland, were shown, illustrating the advance in this direction.

The use of the *X-rays in the treatment of disease* has been tested during the last few years and great advances have been made in this line, more particularly in cases of cancer, tubercular diseases of the skin and rodent ulcer.

In cases of cancer the most remarkable result is the immediate relief of pain. This has been the most prominent and immediate result, and if nothing more were gained than this it would be worth using; but in these cancerous growths and ulcerations there is generally a foul odour, and this also disappears as if by magic. Moreover after a few applications an improvement takes place in the appearance of the wound, and in a few days more, granulations spring up and the case commences to improve. It frequently happens that this improvement once begun goes on by itself and healing goes rapidly on without further application of the rays ; in other cases the treatment has to be re-applied. The hardened infiltrated tissues around the wound become softened and disappear, and if ulcerated, the ulcer, from being an ash coloured sore as it often is, with everted edges, with a blue colour and but little discharge and no vitality, with infiltrated tissues around, becomes level with the surrounding skin with a healthy discharge, free from odour, and with healthy granulations all over it.

Amongst cases that I have treated I may mention one case of *rodent ulcer* under the ear. Twice it had been removed, together with considerable of the surrounding diseased tissue, and on the third occasion the surgeon reported inability to operate further and suggested X-ray treatment. The pain was immediately relieved, and on the fourth night of treatment the patient was able to sleep on that



Dr. Hamilton's case lying down showing the bubble of air floating on front of chest.

Dr. Hamilton's case of Hydropneumothorax, three days after tapping.

Dr Hamilton's case, three weeks after tapping.

side of his head, which he had not done for long previous. The ulcer soon began to heal and after two months and a half of treatment was almost closed over and the infiltrated tissue entirely gone away. At the end of three months treatment it was scabbed over and the man allowed to cross the Atlantic, returning a month later with the ulcer still closed over and no appearance of a recurrence.

A case of *tubercular lupus* of eight years' standing and now with three patches on the face, which had been frequently operated upon without improvement, was treated in the beginning of June, 1901. Eight treatments of X-rays were administered for five minutes every other day at a distance from the tube of 12 inches, with a current of 2 ampêres at 110 volts through a Caldwell break. My absence in England then made a break in the treatment until October, but the patient continued to gain. The treatment was renewed every other day, as before, and gradually increased to five minutes every day, and finally to ten minutes every day. In January and February the treatment had to be stopped in consequence of an attack of measles. After the measles the case was seen to be much improved and after a lapse of nearly two months, treatment as before was again renewed, but the improvement did not seem to be so rapid as formerly, therefore a high frequency current was applied with improvement again. This was continued for a month and then it seemed to lose its power to improve the condition and recourse was had to the arc lamp of Lortet and Genaud's modification of Finzen's light, with the addition of adrenalin as a means of increasing the anæmic condition of the skin. Success followed this, and by the beginning of July the patient was sent away to the country returning well at the end of a month of country life.

A case of *Rodent Ulcer* of the nose near the tip and extending for one inch up towards the bridge of the nose, with a diameter from right to left of one and a quarter inches, a regular cauliflower appearance, and with everted blue edges, had been under treatment in the ordinary manner for six years with no success. The surface of the ulcer was exposed to X-rays at a distance of six inches, the rest of the face and the body being protected by lead sheet, for ten minutes every day, for eleven days, at the end of which time the healing process had been well established. The ulcer healed under antiseptic dressings in 21 days, but a small opening through into the nostril on one side is still left, and this, when the new tissue has had time to become sound, will probably be repaired by paring the edges and bringing them together.

Another case of *Rodent Ulcer* with a hardened and thick base of

some ten years' standing has been treated daily with high frequency currents for ten minutes each time, with the result of softening the hardened base, which was apparently adherent to the cheek bone, being situated to the left side of the nose and below the eye. This patient has not yielded so readily to treatment as others have but was making steady progress and by changing the treatment to X-rays is now quite well.

Before Treatment.

After Treatment.

In the treatment of *Tubercular Lupus* one case above reported has been cured so far. A very bad case involving the whole of both cheeks, the forehead in large measure and with numerous spots of raised coppery-brown patches of tuberculous skin about the arms and body, and with a duration of upwards of 28 years, was put under treatment by several methods. Two spots were treated by X-rays with a current of 110 volts, and 4 amperes to excite the coil at a distance of the tube of 12 inches. Two other spots were treated for ten minutes with high frequency current, and two more by Lortet and Genaud's modification of the Finsen light, with the arc lamp at 3 inches distance from the skin. In all these patches improvement is still going on, and while the patient is still under treatment and will be for some time, from present appearances it will progress to a cure.

The treatment of *Cancer* may be illustrated by the case of a lady of fifty years of age, who had her right breast removed for cancer. One year later the wound broke out again, when a second operation

was performed, and the wound healed up. Within two years she had a return of the ulceration and applied for a third operation with a large superficial ulceration of the cicatrix and surrounding skin. It was deemed impossible to deal with this surgically and she was advised X-ray treatment. This began on June 18th, when there was present an ulcerated area as big as two hands, and giving considerable pain, a hard cicatrix and considerable infiltrated tissue surrounding. The discharge had a fœtid odour. On commencing the treatment, the pain and odour both stopped, and after 20 applications at a distance of 12 inches, the skin for three inches around seemed to be reddened, and therefore further treatment was stopped for the time. Healing went on all over the wound, and at present, there are only two small areas not quite healed, but both are closed with a scab, which is expected to fall off in a few days, showing the whole area healed. In this case there was slight reddening of the surface of the other breast, looking as if the disease had extended to the skin of the other side, but a few exposures to the rays seem to have stopped it.

Two other cases of *Cancer* in the breast in two young women, aged respectively 35 and 38 years, were treated. One had her breast removed two years previously and the cicatrix ulcerated immediately afterwards and now presents the appearance of an idolent ulcer with thickened ebges, raised above the wound and surrounding skin, and purple in colour. Treatment has reduced the thickened edges until they are level with the surrounding skin and the ulcer is cicatrizing. The pain is gone. The other case is one that has not been operated upon and is of two years standing. A line along the lower border of the pectoralis major marks the position of the ulceration. The nipple is gone and the area over the heart is composed of hard thickened tissue with a dense yellow mass, looking like the core of a huge boil, in the centre. Applications of X-rays in the same manner and of the same strength as in the other cases has brought about the healing process. The hard tissue is disappearing and is becoming soft, and the edges of the wound are showing healthy granulations.

I have two cases wherein success did not attend the exhibition of X-rays. One was a man 56 years of age who had had cancer of the stomach, for which he had been operated upon 18 months ago, and came back for another operation. It was then found that the stomach itself and the mesenteric glands were affected to such an extent that no surgical interference was likely to be of any avail. He was therefore handed over to X-rays without any hope of improvement. A tube was allowed to act upon his stomach at ten inches distance ex-

cited by a current of 40 volts at 4 amperes. After twelve treatments he was unable, from weakness, to return and he died a few days afterwards.

A second case was a gentleman who had cancer of the glands of the intestine. He had been operated upon and the part removed, and he returned about eighteen months after and a second operation was performed, but nothing could be removed so the wound was closed but never healed, leaving a fistulous opening which connected with the transverse colon and allowed fœcal matter to escape. This patient was put under X-ray treatment and thought he felt better for it, so that he got an apparatus himself and went home treating himself daily with the assistance of some friend. One day, pushing the treatment too far, he exposed himself to the rays for 40 minutes, with the result of a burn of the skin of abdomen. This all healed ; but after a little over six months he succumbed.

The cases of rodent ulcer and tubercular disease of the skin show a very decided effect for the better in all cases, the wounds have healed up after a short series of exposures. Of course, how long they are going to remain healed, is a question time alone will answer. The cases of cancer of the breast, which I have seen, have been put into a healthy cicatrizing condition, one, I may say, is healed, the other two are still under treatment. I had a case of pyosalpynx, which it was thought would be benefitted by X-rays. Operation on the diseased ovaries was succeeded by peritonitis and death. At the post mortem there were found tuberculous masses in the lung, and there had been an attack of miliary tubercle, and all the patches of tubercle, the miliary tubercle, and the affected neighbouring glands were all encapsuled and proceeding to caseation, so that here it is clear that X-rays have a remarkable action on tuberculosis. We may therefore, I think, safely say that we may expect to find relief from the use of X-rays in tuberculosis, in cancer and in melanotic cancer. The reported cases of cure, that is, cure to date, have been cases of epithelioma, some cases of carcinoma, cases of rodent ulcer, and tubercular lupus.

I have mentioned high frequency and light in the treatment of one case of lupus with satisfactory results. The fact that X-rays, high frequency current, and light produce similar curative effects on the same case may enable us to find some explanation of the *modus operandi* of these agents. There is apparently something common to the three agents which produces the curative action, but in what manner these three agents act to produce the cure is a question we shall have to leave to a future time to answer.

Observations on the postmortem in the case of L. F. from report by Professor Adami, to whom I am indebted for the information.

Left lung free from adhesions, save for a few nodules between the lobes on palpation, many shotty nodules felt, some superficial as small white dots. On section, full of shotty tubercles, particularly numerous in the upper lobe. Two or three larger foci the size of dried peas, with central caseous substance and more fibroid periphery. Lung anæmic; no sign of recent inflammation. Bronchi pale, peribronchial glands caseous and calcareous.

Abdomen. In the mesenteries and over the peritoneal covering of the intestines were occasional small, whitish, fibroid masses, flattened and resembling fibroid tubercles. One of these on section had gritty calcareous contents. The intestine showed no tubercles on the mucous surface, save one doubtful or healing ulcer in the lower part of the ileum and, a few dubious erosions of the mucosa of the same area.

The interest of this case lies in the condition of the tubercles. Evidently according to the evidence this woman had for some time suffered from progressive tuberculosis, nor does the clinical history, with one exception, give evidence of any period of improved health and conditions, or indicate that we should here meet with an arrested process. Rather the onset of acute septic pelvic trouble as a complication might have been expected to lead to an augmentation of the tubercular process. Yet we find everywhere the tubercular process is arrested, the region where the arrest is least marked, being in that part of the peritoneal cavity, situated deeply beneath the ribs, the upper and posterior surface of the liver. The one exception referred to above was during the use of the X-rays, and here it is interesting to note that the upper part of the peritoneal cavity was the part least directly treated.

TEMPORARY LIGATION OF THE CANALICULI AS A MEANS OF PREVENTING WOUND INFECTION IN OPERATIONS ON THE EYE. *

BY

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In February last I exhibited before the Montreal Medico-Chirurgical Society a case of recent suppurative keratitis occurring in connection with dacryocystoblennorrhœa, in which the suppurative process had been promptly arrested by first ligating the canaliculi and then energetically disinfecting the corneal ulcer. In connection with this case I called attention to another in which I had operated for cataract, the eye having perished from acute suppuration coming on within 48 hours after the operation. In this case there was no positive evidence of disease of the tear sac, but the puncta lacrymalia presented a patulous, somewhat pouting, appearance. This seemed to point to the tear passages as the source of infection. It then occurred to me that this could be effectually obviated by ligating the canaliculi close to the puncta and so shutting off any possible supply of disease germs from the tear passages.

Prior to the operation, the usual precautions to make the eye as aseptic as possible were taken and in addition, just before operation on the second eye, I ligated the canaliculi and carefully cleansed the puncta external to the ligatures. This eye recovered from the cataract operation without a single unfavorable symptom, notwithstanding the fact that the patient had been for two months shut up in the hospital and had gone through the pain, worry and disappointment of a panophthalmitis. Before the operations the condition of the two eyes was to all appearance alike. It therefore seems probable that the first eye was lost through local infection from the tear passages and that a similar result in the second eye was prevented by shutting off the source of infection.

Since February I have only had one case suitable for the same pre-

* Read before the American Ophthalmological Society, New London, July, 1902.

caution and here the result has been equally satisfactory; unfortunately this case had been too much meddled with before coming to my hands to be typical of the class in which I consider ligation specially suitable. This patient, about 65 years of age, with mature cataract in the right eye, had long been affected with a copious secretion of yellow muco-pus from the right tear sac. Decrepit, slovenly and unclean, he did not at best appear particularly suitable for operation and much less so in the presence of a suppurating tear sac. He had been advised that the cataract should not be removed until the tear sac disease was cured and to this end the lower canaliculus had been slit and the tear sac treated by syringing and the use of lacrymal probes, apparently without benefit, at least there was when he came under my care still an abundant secretion from the sac, and a conspicuous chronic conjunctivitis. To have shut off the tear sac by ligation would obviously have been impracticable after the lower canaliculus had been opened, and as the usual treatment had already exhausted his patience, it was thought best to arrest the secretion from the tear sac by using a strong solution of zinc chloride. This caused intense reaction for a few days and was followed in a couple of weeks by complete closure of the artificial opening by way of the lower canaliculus, though fluid could be freely syringed through the upper canal into the nose, none escaping through the lower canal. The conjunctivitis was now practically cured. I, therefore, considered the condition of the eye suitable for the removal of the cataract, after having first taken the precaution of ligating the upper canaliculus.

The operation was followed by a rapid and uncomplicated recovery and the principle I am advocating, that of effectually shutting off the source of infection rather than depending on other tedious and doubtful means of procuring asepsis, was again vindicated.

Now as for the removal of cataract in the presence of a suppurating tear sac, I have failed to find in ophthalmic literature any other recommendation than that of treating the tear sac until cured before undertaking the cataract operation. This would be all very well if the cure could be effected within a reasonably short time, and if we could be certain that an absolute asepsis had been achieved. It is quite certain that many bitter disappointments have attended these supposed cures. Some go as far as to recommend treatment of the nasal cavities until they too are thoroughly disinfected before removing the cataract, but who can tell when this has been accomplished? Personally I have no faith whatever in the efficacy of such treatment. I do not believe that safety can be secured by any known means of restoring these parts to a state of health, except by absolute obliteration of the tear sac. On the other hand, the plan I propose does secure immediate and absolute

immunity, so far as infection from the tear sac and nasal passages is concerned.

In the words of descriptive anatomy "the canaliculi are dense and elastic in structure," hence they can be perfectly occluded by a fine ligature for some days at least without impairing their continuity. After removal of the ligatures, in one instance at the end of two weeks, there was no difficulty in passing a small probe through into the sac; in the other two cases the canals were opened after ten and seven days respectively. No doubt the ligature does cause a little swelling and reaction immediately around it for a few days, thus rather increasing the desired effect and securing perfect occlusion for the all important first few days.

Thus far I have used No. 2 iron-dyed silk with a fine curved needle, passing it around the canals just a little to the inner side of the punctura and tying about as firmly as the No. 2 silk will bear; a stronger silk might perhaps be made to cut through, but this I think cannot be made to have this undesirable effect, though it seems to serve the intended purpose perfectly.

It is of course proper to wash out the tear sac, and thoroughly cleanse the parts before applying the ligature. So far I have done this immediately before removing the cataract, but there might be cases in which it would be well to ligate a few days before, and treat the conjunctiva if inflamed, for some time prior to operation. As compared with treatment intended to cure chronic inflammation of the tear sac preparatory to operating for cataract, it will I think be conceded that ligation of the canaliculi is infinitely superior as a prophylactic measure; furthermore it is almost painless, easy and simple of performance, and not followed by the slightest inconvenience or annoyance to the patient. The secretions pent up in the tear sac do not perceptibly increase, and cause no inconvenience. There is, moreover, no loss of time, for the reason that the cataract can be removed either immediately or at most after a few days delay. This is an important consideration for persons living at a distance and perhaps unable to remain for any considerable length of time away from home.

But there is still a larger class of cases in which ligation should, and I have no doubt will, prove to be of great value—I refer now to all those numerous cases of corneal ulcers infected by secretions from the tear passages—everyone knows how disastrous they are apt to be and how impossible it has heretofore been to prevent reinfection of the ulcer from day to day. For this very reason an infinite number of eyes have perished in spite of all the most approved methods of treatment. Temporary ligation at once fulfils the most urgent indication and

should prevent further spreading of the ulcer from the moment the corneal lesion has been thoroughly disinfected. The one case reported in the *Montreal Medical Journal* of last March, is sufficient to illustrate a principle which awaits confirmation by the test of sufficient experience. If the idea is a new one and happens to meet with the approval of this Society, so much the better, but if their judgment of it should be adverse, there will be the satisfaction of knowing that condemnation comes from a thoroughly competent and impartial tribunal.

TUMOR OF THE OPTIC NERVE, WITH INTRA-CRANIAL COMPLICATIONS.

BY

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This case is one of the usual type of optic nerve tumors, but presents the unusual, though not unknown peculiarity of involvement of both optic nerves, and loss of vision of both eyes.

B. S., aged 14, was brought to me by her mother on Dec. 6th, 1901, with a history of failing vision of the right eye since the preceding June. Up to the latter part of Dec. 1900, had enjoyed excellent health and was considered up to the usual standard of development and intelligence as compared with her brothers and sisters. In December, 1900, she had an attack of measles, and according to her mother's statement, was never quite herself again, though she and several other members of the family recovered without definite complications. In the following June, first noticed some difficulty in seeing clearly with the right eye, and in July or August the eye had begun to be prominent, and was now quite blind. The proptosis has gradually increased up to the present time and is now very great, as shown by accompanying photographs. Claims to have been quite well with the left eye until about two weeks ago. Vision with this eye is now reduced to counting fingers at one foot distant. The visual field not determinable. Pupil wide and inactive. The optic nerve presents unmistakable optic neuritis, though the swelling of papilla is not very pronounced. Otherwise there is nothing to indicate disease within the left orbit.

To return now to the consideration of the conditions present in the right orbit, no tumor can be discovered by palpation (without an anæsthetic); the globe is displaced as nearly as can be estimated, about 6 millimeters forward and four millimeters upwards. It is rotated inward most of the time, occasionally there is a squint in the opposite direction, i.e., a rotation outwards, without corresponding position of the other eye. The movements are slightly restricted in all directions; the pupil wide and reactionless, except when the left eye makes an effort at near vision; then both pupils contract normally. The ophthalmoscope shows a typical choked disc without hæmorrhage or other changes in the retina; refraction at macula equals $2\frac{1}{2}$ D. At the surface of papilla about 10 D.

The early loss of vision with proptosis occurring about the same time, are common signs of optic nerve tumor; but there were in this case the additional early symptoms of a distinctly cerebral character, such as vertigo, ever since the spring of '91, and from about the same time purposeless vomiting, more particularly early in the morning. The child is slow of speech, and rather lacking in general intelligence; but there is neither motor nor sensory paralysis unless we count as such the loss of olfactory sense and the loss of vision as described above.

The patient complains of some soreness down the right side of the neck, and the head is drawn somewhat downward, towards the right, apparently in consequence of spastic contraction of certain muscles in the neck. There is also absence of patellar reflex.

It was fairly evident that we had to do with a neoplasm, involving the right optic nerve, the optic chiasm and probably extending more or less widely within the cranial cavity.

In order to be quite certain as to the first part of this diagnosis, on the 11th of December the child was anæsthetized, and I divided the internal rectus, and rotated the eye so far outward that I could see the condition of the optic nerve, which appeared enormously thickened and contorted, much as in the accompanying diagram; exploration with the finger also detected the larger mass extending to the apex of the orbit. I then reattached the rectus muscle, and waited several weeks, with the intention of removing the growth by Krönlein's method. This operation, done chiefly for the purpose of getting rid of the disfigurement and deformity produced by the presence of the growth in the orbit, I performed on the 9th of January. Recovery was uneventful. For some weeks there was still a considerable proptosis and great œdema of the ocular conjunctiva, all of which slowly subsided, leaving at the time of discharge, on Feb. 19th, an appearance indicated in the accompanying photograph.

Besides the swollen and curiously contorted optic nerve, there was a great mass of new growth, completely occupying the apex of orbit. When this had all been cleared away the optic foramen could be distinctly felt with roughened margins and very much wider than normal. For some two or three weeks the child appeared listless and dull after the operation, but before the date of discharge from the hospital there was much improvement in this respect, though still far from being bright or intelligent. There was also at this time an increasing papillitis of the left optic nerve and vision reduced to qualitative perception.

It is remarkable how many of the recorded cases of optic nerve

tumors have followed injuries about the head, or some constitutional febrile condition. This case belongs in the last mentioned group, and was attributed, by the parents at least, to the attack of measles already mentioned. This occurring as it did, some months before vision failed, a possible connection between the two cannot be denied, when we take into consideration the definite history of vision having failed gradually within six months, and allowing for the fact that the tumor must have been growing for quite a long time before the child would have noticed any loss of vision, this would in all probability bring the commencement of the trouble back to about the same period of time as the attack of measles.

In Dr. Byers' paper referred to in this report, his synopsis of 102 cases, shows one other case to have followed measles. This case is moreover somewhat rare, though not unique, as already stated, in the involvement of both optic nerves, and exemplifies the fact which Byers has pointed out, viz:—"The Frequent Co-Existence of an Inter-Cranial Growth with that of the Orbital Portion of the Optic Nerve," so that the former is not the result of extension from the orbit, but constitutes a part of the original neoplasm.

Dr. Byers has kindly furnished me with a pathological report of this case, which is herewith submitted.

Pathological Report.

After hardening for some time in Formalin, the tumor presented the appearance depicted in the accompanying sketch. Anteriorly the optic nerve was almost uniformly enlarged to a diameter of 5 or 6 mms., for a distance of about 2 cms., and then occurred a sudden marked increase in the size of the growth, which measured here about 15 mms., from before backwards and 30 mms., in height and breadth. The capsule of the tumor was formed by the nerve's dural sheath, which was present everywhere except on the posterior surface of the larger portion where separation had taken place. The anterior portion of the growth as depicted in the sketch was twisted one whole turn upon itself.

Section of the tumor showed the usual conditions—dural sheath externally separated from the paler nerve proper by the newly formed subdural tissue. In no part of the growth was there anything resembling a cystic condition. The course of the optic nerve proper throughout the tumor was quite eccentric, and this structure, apparently normal anteriorly, slightly increased in size towards the optic foramen near which, oval in shape, it measured 5 x 3 mms.

Microscopically the subdural overgrowth consisted of a loose mesh-

work of flowing connective tissue arranged in ill-defined bundles, which anastomosed freely with one another by means of delicate interlacing fibrils. There were numerous well-stained nuclei scattered throughout the field, but very few vessels. The picture was, in fact, identical with that of the first tumor removed by Dr. Buller and described and depicted in Vol. 1, No. 1 of the Royal Victoria Hospital Studies.

Absent from the sections were any marked signs of œdema or myxœdematous change, and dilation of the lymph spaces of the nerve so marked a feature in the case already mentioned and in the tumor presented to the Society by Dr. Buller in 1899, was barely, if at all, noticeable.

Staining with Pal-Wiegert showed complete degeneration of the nerve fibrils. The slight enlargement of the nerve proper towards the optic foramen was apparently due to an increase in the endoneurium of the individual bundles rather than to a hyperplasia of the interfasicular connective tissue.

The microscopical characters of this growth present only the picture of a simple hyperplasia of the fibrous elements of the subdural space, and to a slight extent of the individual fasiculi, especially toward the cerebral end of the nerve. The overgrowth corresponds in no way to any special type of tumor formation, and must be looked upon as a phase of that development of fibrous tissue in the abstract which we designate technically *fibromatosis*. It will be observed on examination how essentially the condition is one of simple overgrowth of the fibrous tissue elements and how little marked are the cellular and myxœdematous characters so commonly present in specimens of the condition mentioned.

It is worthy of note, also, that the microscopical examination showed that the maximum intensity of growth was toward the optic foramen, that the extirpation of this tumor was incomplete, and that the tumor must necessarily have formed only part of a large intracranial neoplasm which, judging from the clinical history, must have developed more or less simultaneously with that situated within the orbit.

A STUDY OF THE RETICULAR SUPPORTING NET-WORK IN MALIGNANT NEOPLASMS.

AS STAINED BY MALLORY'S METHOD.

BY

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Observations on the presence of several varieties of connective tissue in tumors have been recorded in well-known papers. Comparisons have been drawn between the distribution of the connective tissue in the sarcomata and carcinomata, but I believe that heretofore there has been no thorough comparative study of the finer supporting organization of all the types of malignant tumors—by which I mean, carcinomata, sarcomata and endotheliomata, which last type includes the peritheliomata.[1]

That such a study would be generally interesting was a foregone conclusion, but there was a possibility that it might be very useful in assisting to make diagnoses of the more obscure growths by a fairly rapid method and also establish the relations between the various types of new growths.

Mallory's method was chosen because fresh tissue is not always to be had and because I had found that the use of digestion methods was unsatisfactory in fixed specimens. This method is, beside, a particularly brilliant method of staining, for, not only the supporting tissues, but, in well-fixed specimens, the cells are clearly and brightly stained, allowing a more careful study of the relation of framework and cellular elements.

In using the method I have made a slight modification which I think brings out the colors somewhat better than the original method. This deviation is simply in the use of a drop of aniline oil on the section just after the alcohol, but the method I will give in detail.

Sections are cut from tissue hardened in Zenker's fluid and imbedded, preferably, in paraffin. These are fixed on slides in the usual way and then the paraffin is dissolved off and the slide immersed in absolute alcohol, 95 per cent. alcohol, 70 per cent. alcohol, then in water. They are then stained in a 1/10th per cent. aqueous acid fuchsin solution for from 2 to 3 minutes, then washed in water; a few drops of a 1 per cent. solution of phospho-molybdic acid is then

dropped on the section and allowed to remain from 5 to 7 minutes. The slides are now carefully washed in water and the stain composed of aniline-blue 0.5 grams, orange G, 0.2 grams and oxalic acid 2 grams, with 100 cc. of water, is dropped on, to remain for about twenty minutes. The slides are then rinsed in water, hurriedly dehydrated with 95 per cent. alcohol and then a drop or two of aniline oil is allowed to remain on until the sections are clear, when it is removed by blotting and the sections are then cleared in xylol and mounted in balsam.

By this method the finest reticular processes can be seen clearly and distinctly, and their relation to the cells studied with any power of the microscope.

Before speaking of the structure of the tumors I think it will be well to recount the structure of the tissues in which the growths arise. In doing this I can let the paper of Dr. Adami on classification speak for me, in part, for in this communication the author reviews the genesis and structure of the body layers in an extremely clear manner.

Briefly then—at an early stage of the life of the embryo there are three layers of cells developed from the one original layer; these are, epiderm, hypoderm and mesoderm. But at a somewhat later time the mesoderm "from being a simple undifferentiated cell mass, which we may compare with the morula, certain of its cells growing outwards between the epiblast and hypoblast, become arranged into a definite layer to form or enclose the primitive body cavity. From this point onwards we can distinguish two structures of mesoblastic origin—the mesothelium, or lining-membrane portion of the mesoblast; and the mesenchyme or the mesoblastic pulp." So, as Adami says, "during embryonic life one obtains a series of differentiations of the primitive cell layers leading to the production of two sets of tissues; one which we may term the *lining-membrane tissues*, the other, the pulp tissues" (p. 5). Both of these layers become developed widely, and highly differentiated, into organs and tissues, but "even in cases where there is the widest divergence from the original type of lining membrane, we find that this distinction still holds, that the parenchymatous cells form *layers or groups of cells into which the vessels do not penetrate, and in which there is an absence of stroma between the members of the cell groups.* While, contrariwise, regarding tissues originating from the embryonic pulp, we notice that in them the prominent characteristic is that there is an *intercellular ground substance either homogeneous or fibrilated, separating the specific cells of the tissues*". (p. 6).

It is because of such features as these that Adami speaks of tumors arising from the lining membranes of the body as lepidomata (lining membrane tumors) and hylomata (pulp tissue tumors).

The object of this paper will be to show how closely the tumors adhere to the types of tissue in which they originate—judged by the arrangement and distribution of their intercellular substance.

First of all—if, "after the embryonic period hylic tissues never take on lepidic characters," we could expect to find among the tumors that none of those arising in connective tissue of any kind would present any of the features of a carcinoma.

Second, we might expect the reverse to be true if we confine ourselves to tumors arising in mature epithelium or hypothelium.

FIG. 1. Cancer of rectum. Metastasis in lymph gland. Mallory's stain, Leitz, I-6.

Judging from the case reports of several writers we cannot expect the tumors arising in mesothelial tissues to possess such stable characters, and since the endothelium is a later development from a relatively undifferentiated tissue, we should expect this lining membrane to show no more permanent characters than those of the physiologically functional cells derived from mesothelium, and too, less stability than has the older hypoderm or epiderm. In view of such peculiarities of the tumors arising in these differentiated mesodermic tissues, Adami calls them the "transitional lepidomata."

When we come to study the finer supporting tissues of the class of tumors which are more usefully—for the present purpose—called lepidomata, since this term excludes those growths which may originate in other than the true covering membranes, we are able to state definitely that the rule is for the absence of an intercellular fibrous tissue. This point White has made after a careful study of tumors, treating them by Mall's, Spalteholz', Van Gieson's, Weigert's and Mallory's methods. The text of his conclusion is as follows: "Carcinomata possess a stroma of white fibrous tissue outlining the cell spaces, but have no intercellular network" (p. 220).

Petersen (Verh. d. deutsch. path. Gesell., 3 Tag., 1901, 61) has offered the same conclusions.

In order to be convinced and see for myself that this is true I have made Mallory preparations from a number of carcinomata of rectum, gall duct, stomach, metastases in lymph glands, in the adrenal and other organs, and have been able to reach the same conclusions, with the slight apparent variation due to the observation that in a rapidly infiltrating cancer, for instance of the stomach, when single cells are more or less isolated at the margin of the growth, the appearance may lead one to think that there is an intercellular reticulum. But if even the smaller aggregations of cells are studied it will be found that in no case is there a definite intercellular supporting network (Figs.

FIG. 2. Cancer of breast. Metastasis in lymph gland
Mallory's stain. Leitz, I-6.

1 and 2). About the cell groups in carcinomata the fibrous tissue forms a perfectly definite boundary zone with no tendency for the fibrils to branch into the cell groups.

When we come to study the sarcomata (hylomata) in the same way, we see that in rapidly growing nodules, while the reticulum is not always invariably present in the centres, the surrounding fibrous tissue is not well defined and definite and that fibrils are dipping down into the cell masses, and also that between the cells in various parts of the nodules short intercellular fibres can be seen. In gradually growing nodules the intercellular tissue will be seen complete, justifying completely White's conclusion that "sarcomata present a

larger increase in the connective tissue and possess an exceedingly fine intercellular reticular network, very similar in structure to the reticulum present in normal glandular tissue."

Johnston also makes definite statements as follows: that there is a "reticulum present to a greater or less degree in every sarcoma," and that "the reticulum is entirely absent between the cells of carcinoma and endothelioma, a valuable differential point." The last part of this conclusion we will discuss presently.

FIG. 3. Endothelioma. Mallory's stain, Leitz, 1-6.

Polak comes to the same conclusion with reference to the sarcomata.

I have been able to justify these conclusions after a study of several sarcoma, of stomach and mediastinal glands.

Now when we come to examine the structure of the endotheliomata (secondary or transitional lepidomata), we have to deal with a group of tumors that arise from cells differentiated from the middle germinal layer and from the mesothelium. Consequently they are embryogenetically more closely related to the sarcomata than to the

carcinomata (using the terms in their morphological sense). But with this origin and relationship they bear, nevertheless, in a great many instances, a very close morphological resemblance to the carcinomata.

As they are usually described, they form two more or less well-marked types, according to their origin in the lining endothelium of blood vessels, or in that surrounding the blood vessels, which is generally supposed to be the endothelium lining the perivascular lymph spaces.

For my study I have had a very large number of excellent specimens, about forty in all, and for the majority of these I am greatly indebted to Dr. Hektoen of the University of Chicago, and to Dr. Henry Christian of the Boston City Hospital. My method of preparing sections I have described.

So far I have been able to find no general difference in the distribution of the reticular meshwork in the endotheliomata and peritheliomata. The only difference occurs in the very cellular, well circumscribed, and in the infiltrating forms.

When the cells of the tumor growths are arranged in groups, more or less as in the carcinoma simplex, the general rule has been that these cell masses are surrounded by a well-marked fibrous tissue and with very rare intercellular fibres, but there is this difference from carcinomata, that *there is a tendency to the formation of an intercellular reticulum* which is, in some cases, only shown by filaments from the enveloping fibrous tissue dipping down into the cell masses, and in many cases branching and surrounding a few of the peripheral cells. In sections of the same tumors in which this is seen there may also be groups of cells in which the process has gone farther, and *between the majority of the cells in the group there is a definite intercellular meshwork.* This is apparently regardless of the endovascular or perivascular origin of the growth (Fig. 3.)

We see here very plainly evidence of the relationship between the endotheliomata and the sarcomata. This similarity is still more markedly shown in the infiltrating growths in which, while about the vessels the reticulum is scarce, the cells are separated by a well-marked reticulum which has all the appearance of that of a sarcoma.

I am convinced that this appearance is not due to the presence of the reticulum of the normal tissue into which the cells have penetrated, because the arrangement is too definite and general, and is entirely unlike the picture presented by the infiltrating carcinomata, when a few cells may be seen surrounded by the blue-stained fibrils. In cancers there are few examples in a specimen of a regular intercellular

formation, and these few examples would be no more than we might expect, simply as an artefact, due to the cutting through the end of a column of cells, the whole surrounded by a reticulum.

The conclusions that I have drawn are that the alveolar endotheliomata show, at the least, a partially-formed intercellular reticular network; at the most, an almost complete one; and that the infiltrating forms show a complete meshwork which corresponds to that of the sarcomata; that all endotheliomata of whatever origin show a tendency to a sarcomatous structure as regards the relation between cells and reticulum.

The application of this, in at least one way, is obvious. It represents most graphically the peculiarities of the derivation of the middle germ layer in its instability compared with the cells of the other layers, and brings out quite prominently the tendency of such relatively unstable tissue to revert to the simpler embryonic type, to lose its acquired functions and retain its hereditary one of simple growth, and in that growth to preserve all the peculiarities of the great group of connective tissues to which it really belongs.

This study shows also, I think, the value of the embryological basis of the classification of tumors.

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ON ANKYLOSTOMIASIS OR UNCINARIASIS.
A REVIEW.

BY

J. George Adami, M.D.

Asked to name the two lines of research along which, at the present time, pathologists in general are most actively engaged, one would unhesitatingly, for the first, mention the study of hæmolysins, agglutinins and other cell products along the lines of Ehrlich's now famous theory, and, for the other, would mention the study of the parasites infecting man. Many a young, well-trained pathologist has seized the opportunities afforded of late years to investigate the abundant diseases of tropical countries, whether as a member of some army medical staff, or holder of some government appointment, or as a member of one or other of the many commissions sent out from the different civilized countries to investigate the causation of some special disease.

It is needless to refer to the remarkable results obtained from the study of the mosquito as an infective agent. What has been accomlished in connection with malaria, filariasis, and yellow fever, is, or should be, familar to all. But the interest in the minuter animal parasites, whether of the blood or of the intestinal canal is by no means confined to those conveyed by the mosquito. Not a month passes but some new and valuable observations are announced from one or other part of the world regarding the smaller parasites. It has struck me that it might be of interest to bring together certain of the recent observations regarding one of these smaller forms,* not, it is true, a new form, for it has been known for many years, but one which has within the last few months been noted for, I believe, the first time, causing very definite symptoms in a large number of individuals in the Old Country and, to come somewhat nearer home, as causing rather widespread disturbance in the Southern States. So far I do not know that it has ever been noted in Canada, but with the influx of Italian and other foreign labourers and with the increase in mining and enginer-

* Richard P. Strong—Circulars upon Tropical Diseases, No. 1, Chief Surgeon's Office, Manila, 1901.

Charles A. Bentley—On the Causal Relationship between Ground Itch or Panighao and the Larvæ of Ankylostomum duodenale from the Soil. British Medical Journal, Vol. I., p. 190.

Charles Wardell Stiles—The Significance of the Recent American Cases of Hook Worm Disease (Uncinariasis or Ankylostomiasis) in Man. Eighteenth Annual Report of the Bureau of Animal Industry, Washington, 1902, p. 183.

A. E. Boycott and J. S. Haldane—On the Outbreak of Ankylostomiasis in England. Journal of Hygiene, Vol. III., 1903, p. 96.

Looss—Centralblat für Bakteriologie, 29, 1991, p. 735,

ing operations, it is not improbable that, if it does not already exist and set up disturbances in our midst, it may do so in the course of the next few years. I refer to the little intestinal worm which we used to know as Anchylostomum duodenale and the condition of Anchylostomiasis, which now we are instructed to speak of as an Uncinaria and as Uncinariasis respectively.

Before proceeding further it is, I think, but right to enter a protest against this change in nomenclature. There is a strong and, I admit, a perfect well-justified movement at the present time to establish a sound system of scientific nomenclature, more especially as regards the different species of animals and vegetable forms. According to the rules, as now accepted by biologists, the name first given to a species should stand, unless that same name has already been applied to some other species, and provided that it already conforms with certain other rules laid down. But the attempt to carry out these rules is, it must be confessed, causing not a little present confusion. This has been specially seen in connection with bacteriology, in which names have been originally given to various species without any regard to the strict rules of botanical nomenclatue. The discoverers of and workers upon one or other form have named them in a haphazard way and frequently have used two adjectives to describe a single species Such triomial appelations are absolutely against the rule. All the same it is a wrench not to be allowed to refer any longer to the Bacillus colis communis, Bacillus lactis aërogenes, Staphylococcus pyogenes aureus, Bacillus aërogenes capsulatus, and so on. It is difficult, for example, always to recognize the last of these under its new name, however well deserved, of Bacillus Welchi, to recognize, also, the old Bacillus pyocyaneus under its combined newer and older name of Pseudomonas aëruginosa. But in such cases we must submit.

More than a century ago, in fact in the year 1879, Frolich discovered a minute worm in the intestines of the fox to which he gave the name of Uncinaria. His observations were quite forgotten when, in 1838 and 1843, Dubini of Milan, discovered and described a similar worm in the small intestines of man, and gave to it the name Agchylostoma duodenale (which is the unlatinized form of Anchylostomum) and although Dujardin in Paris rechristened this human worm, Dochmius, and Cobbold in England referred to it as a Sclerostoma, nevertheless for over half a century the name Anchylostomum has been that which has been generally accepted. And what is more, those who are not simply zoologists, the large army of medical men in all parts of the world, have known the worm by this name and have, further, employed the term Anchylostomiasis to designate a definite condition of disease produced by the same. Now come the zoologists and on the

grounds that they have established an international law that species should be named according to priority, they lay down that these names are to be changed, that Uncinaria was the name first bestowed upon worms belonging to this genus, and so force us to give up titles which are familar, titles which we have utilized in connection with the nomenclature of disease. Let it be admitted that Anchylostomum is a mouthful and not a pleasing word, that, also, it is spelt variously (though it scarce becomes American scientists to growl on this account), it must nevertheless be confessed that we have the right to doubt whether zoologists are justified in rigorously demanding that others not zoologists subscribe to the law made by them for their own convenience. Where a species is obscure by all means let the zoologists change its name as much as they please, but where a given name has become familiar, has been in use for sixty years, and where workers of another science have used it and made combinations in connection with it to indicate certain phenomena or groups of phenomena, which concern them and do not concern the zoologist, then change of this kind is no longer permissible; the name has to be accepted as being already fixed: it is fitting, nay imperative, that the zoologists and species-makers respect our usage of the same, and modify their rule. In this particular instance, the need for establishing such exception to the rigid carrying out of the "law of priority" is rendered all the more obvious by the irritating announcement that, after all, the zoologists are not absolutely sure whether the hook worm of man and that of the fox and dog do belong to the same genus. Looss, for example, brings forward evidence that they do not, and Stiles admits that he is probably correct, so that after all, just when we are getting accustomed to the new term Uncinaria, we are told that it is incorrect and that the human hook-worm is to be regarded as of a different genus and by the law of priority we are to go back to the old name of Anchylostomum. Let zoologists make up their minds regarding species and genera before demanding of us that we change our terms. A plague on them !*

* While Dr. Stiles holds strongly for speaking of Uncinariasis instead of Ankylostomiasis, he questions whether it is not unadvisable to name diseases after the zoological names of the parasites. Here we cordially agree with him, but nevertheless would point out the difficulties. Suppose, for example, we were to speak of this as 'Tropical Chlorosis,' in many respects an excellent designation, for the majority of cases occur in the tropics and in sub-tropical regions, that name would not well include the cases developing among miners in more northerly countries. 'Hook Worm Disease' also suggests itself as most appropriate, but has this disadvantage that names of morbid conditions in the vernacular introduce complications when one comes to study the literature of other nations, and when those of other nationality come to study ours. It is best to select a name readily recognizable by all workers everywhere and the name compounded from that of the parasite lends itself most readily for this purpose.

The human hook worm is of minute form not much above half an inch in length, inhabiting the upper part of the small intestine and was first described, as already stated, by Dubini in Italy. Some few years later in the fifties, it was found to be very widespread in Egypt where Griesinger showed that the disease known as Egyptian Chlorosis is due to its presence; he, indeed, calculated that one-fourth of the inhabitants of Egypt harboured the worm and suffered from anæmia as a consequence. A few years later Wucherer showed that the anæmia common in Brazil is Anchylostomiasis and since then this same condition has been identified in very many other tropical and sub-tropical countries, both in the Old and New Worlds, one of the latest regions from which it has been announced being the Philippines.

But apart from the existence of hook worm disease generally diffused throughout the population in warm climates, it has been noted to occur affecting more limited masses of the population, in the Temperate Zone. Somewhat over twenty years ago, Perroncito showed that this worm was the cause of a very severe outbreak of anæmia among the workers in the St. Gothard Tunnel and since then in France, Germany, Belgium, etc., it has been found to cause a great deal of anæmia among brick workers and here and there among miners in connection with certain mines.

The recent work upon the subject to which I more particularly wish to call attention, is the recognition that the disease is extensively present in the Southern States and when so present is found to be due, not to one, but to two species of hook worm, the Old World species, evidently imported by bricklayers and others from the Old World as from tropical America, and an American species recently discovered by Stiles, which he has named the Uncinaria americana. Boycott and Haldane now announce also the existence of the disease in Great Britain affecting the miners in the celebrated tin mines at Dolcoath, in Cornwall, and their communication gives a particularly full and valuable study of the symptomatology and blood conditions in the disease.

Before, however, referring to these observations, it may be well to give a brief description of the worm and its mode of life. The worms, male and female, are to be found chiefly in the upper part of the small intestine of man, the male being about half an inch, the female three quarters of an inch long, both being thin and of even thickness, resembling a short piece of coarse thread, with a well formed hook or curvature at the anterior end of the body, brought about by the mouth being, not terminal, but slightly dragged to the ventral surface. The eggs are oval and some 52 x 32 mikrons in size and

when laid are already partly segmented. The newly discovered form, U. americana, differs in that the individuals, both male and female, are somewhat smaller, the teeth have a different arrangement, resembling more those of the U. stenocephala of the dog; the vulva in the female is situated in the front of the middle of the body, whereas, in the Old World form, it is nearer the posterior third of the body and the eggs are larger, being from 64 to 72 mikrons long by 36 to 40 broad. So far this new form has been found in Virginia, Texas, Porto Rico and Cuba.

The eggs laid by the female are discharged in the fæces of the patient and do not develop into adult worms in the intestine of their host, but for further growth must first pass out of the body. They develop best in unaltered fæcal matter. Each egg develops a minute embryo with a more or less globular œsophageal bulb, differing from that of the adult. This embryo lives in water or in moist ground; in its growth it casts its skin four times, gradually assuming more and more the adult characters. Low temperature retards development, a point which explains how, in temperate zones, the worm persists and develops especially in deep mines and excavations, in places, that is, where the temperature is distinctly warm. After the second casting of the skin, the worms live best in water. Looss, indeed, succeeded in keeping them alive thus for thirty days. Now upon being swallowed, the further stages are carried out within their host, some fortnight apparently being required before they reach the adult form. Drinking contaminated water, or handling infected dirt, is evidently the means of carrying these worms into the alimentary canal of the second host.

Recently Looss has suggested that the larvæ may enter the body directly from the skin. He has found that the larvæ, being placed upon the skin, lead to its becoming reddened in a few hours and now, upon examination, they are found to have penetrated along the hair follicles and elsewhere, so as to lie within the tissues. It is possible, therefore, that once thus within the system, the young worms may find their way to the digestive tract and that cutaneous injection may be the common means of spread. In this association it is worthy of note that Boycott and Haldane call attention to the frequent "botches" and pruritus associated with the disease in Cornwall. They were, however, unable to discover the larvæ in the furuncles which they examined.

In this connection Bentley propounds the view that the Ground Itch or "Pani-ghao" of Assam and of the West Indies, otherwise known as "water-pox" or "sore feet of Coolies," an affection of the skin confined entirely to the lower extremities, is always associated

with the presence of larvæ of the A. duodenale in the soil of the affected areas and is, in fact, brought about by the infection of the skin by these larvæ. The condition develops in affected areas when the rainy season comes on. There is a primary erythema, followed by a vesicular eruption, which may become pustular or even may lead to obstinate ulceration and gangrene.

Patients affected with these worms show as their most characteristic symptom a marked anæmia, with extreme pallor, palpitations and hæmic murmurs and breathlessness upon exertion. There may be dull or colicky pains in the abdomen and, as the condition becomes worse, and enfeeblement more extreme, œdema is apt to show itself, more particularly in the lower extremities. There may be nausea, but little marked vomiting. The stools are apt to take on a curious brownish character, sometimes exhibiting definite blood.

It is this anæmia which more particularly has been studied by Boycott and Haldane and its cause would seem to be fairly clear. The hook worms are blood-suckers and what is more, do not remain in one place, but after having gained a meal at one spot, they attach themselves to another region of the mucosa and puncture it until they pass down to and drain some capillary. Not only, therefore, do they actively abstract blood, but blood is lost through minute hæmorrhages from the successive bites abandoned by them. Nor is this all. Each bite becomes a focus of possible infection and the seat of definite inflammatory change so that, as a result, the wall of the small intestine becomes thickened and thereby, also, nutrition is impoverished. In the third place, recent investigations are more and more leading to the conclusion that this and other intestinal worms secrete a definite if low form of poison.

We have probably, therefore, to deal with three factors in the production of this form of chlorosis; hæmorrhage, a low form of infection, and intoxication, all leading to pronounced changes in the blood. It has been usual of late to describe this anæmia as being somewhat similar to pernicious anæmia, but as Boycott and Haldane show, this view is incorrect, it is very rarely that the anæmia is so extreme as to merit this term. Their studies upon the blood show that the old name of Egyptian chlorosis was more nearly correct. The blood conditions more nearly approach those seen in well marked chlorosis than after simple hæmorrhage or in pernicious anæmia.

What goes by the name of anæmia may be produced either by diminution in the total hæmoglobin in the vascular system without a corresponding diminution in the total volume of the blood, or by an increase in the total volume in the blood without a corresponding

increase in the hæmoglobin. In a very remarkable paper published two years ago (Transactions of the Pathological Society of London, Vol. 51, page 311), Lorrain Smith showed that pernicious anæmia and anæmia from hæmorrhage are of the former, and chlorosis of the latter type. In chlorosis, that is, we are dealing with a form of hydræmia or of dilution of the blood. It is unnecessary here to go into the very ingenious method of Haldane and Lorrain Smith, based upon the absorption of CO, whereby the percentage of hæmoglobin is determined and, noting the amount of CO absorbed, the absolute amount of hæmoglobin in the blood calculated. It is but necessary to state that in employing this method, instead of discovering in Anchylostomiasis an anæmia such as would be expected to be obtained through simple loss of blood, there was discovered one closely resembling that seen in advanced cases of chlorosis. Thus taking the percentage of hæmoglobin and the cubic centimetres of blood per 100 grms. of body weight, respectively, the following figures came out:—

6	healthy young females (Lorrain Smith)	93 per cent.	.92
6	cases of anæmia from hæmorrhage (Lorrain Smith)	33 per cent.	.39
7	pernicious anæmia (Lorrain Smith)	26.5 per cent.	.40
21	chlorosis (Lorrain Smith)	39.9 per cent.	.79
4	anchylostomiasis (B. & H.)	45 per cent.	.735

These cases showed that the condition much more closely resembled what is seen in chlorosis than in the other conditions. It is true that poikilocytosis, normoblasts and megaloblasts have been described in some cases, but on the other hand, the colour index is nearly always very low and the megaloblasts are less numerous then the normoblasts, while the more pronounced the degree of anæmia, the less does it show the high colour index characteristic of the pernicious type.

The total leucocytes vary from 3,800 to 56,000 per ccm., the average of 16 definitely anæmic cases being 13,000, and it is noteworthy that where there is marked anæmia leucocytosis has generally, to a large extent passed away. There is a definite increase in the eosinophiles, but this also bears no precise relationship to the degree of anæmia as indicated by the hæmoglobin percentage, but, as was noted by T. R. Brown, in Baltimore, (in his case in Trichinosis in which he first called attention to the eosinophilia associated with the presence of gross parasites), it corresponds, in a general way, to the degree of leucocytosis which is present.

Those interested in this subject are referred to Boycott and Haldane's paper for a very full study of the conditions in the mine at Dolcoath, under which this form of anæmia became so frequent. Those mines have apparently been worked for tin ever since the time of the Phœnicians, but only within the last eight years has this

extensive anæmia shown itself in the workers. Evidently the disease has been introduced by Cornish miners who have returned from other countries, where their services are much in demand.

Similarly reference may be had to Dr. Stiles's very full article in the Eighteenth Annual Report of the Bureau of Animal Industry for a bibliography with abstracts of cases of the disease occurring in the United States. As will have been noted by many of our readers, the daily press both here and across the water has of late contained paragraphs concerning the discovery of a "microbe of laziness." This refers to another more recent article by Dr. Stiles, in which he ascribes the listlessness and distaste for work so characteristic of those inhabiting tropical and sub-tropical countries, to the prevalence of this disease. It is true that anchylostomiasis does bring about slowly a condition of bodily weakness and that this condition may continue for long years. Whether this is wholly coincident with the indolence of the negro and of the "poor whites" in the Southern States and of other inhabitants of the tropics elsewhere, may well be questioned.

I may here, in conclusion, epitomize the advice given in regard to the detection of the condition:—Simply take a small amount of fæces, preferably from near the surface, about the size of the head of a large pin, spread this out in a drop of water on an ordinary slide; cover with a cover-slip, examine under a moderately high power, look carefully, with not too strong illumination, for an elongate oval egg with thin shell and with contents either unsegmented or in the early stages of segmentation. In cases of infection with U. americana, the fully developed embryo may be found within the egg shell. Be cautious not to mistake for the egg of the Uncinaria, the eggs of Ascaris lumbricoides (which have a thick gelatinous, often mammilated covering and unsegmented protoplasm), or the eggs of the Oxyuris vermicularis (with a thin unsymmetrical shell, one side being almost straight, and containing an embryo), or the eggs of the whip worm (Trichuris trichiura, more commonly known to physicians as Trichocephalus dispar, possessing a smooth thick shell, apparently perforated at each pole and an unsegmented protoplasm). Before giving a negative opinion, it is wise to make from five to ten preparations or to follow the method of sedimenting the faeces.

Lastly as to the treatment. The two drugs most commonly used are thymol and male fern.. The directions usually given for thymol treatment are:—2 grms, (31 grains) of thymol at eight A.M., ditto at ten A. M.; castor oil or magnesia at twelve noon; diet of milk and soup. If a week later the eggs are still present in the stools, the treatment should be repeated, it being borne in mind that some cases are very obstinate and demand a treatment extending over several weeks.

RETROSPECT

OF

CURRENT LITERATURE.

Medicine.

UNDER THE CHARGE OF JAMES STEWART.

On Anæmia Splenica.

OSLER, WILLIAM, M.D. "On Anæmia Splenica." *Am. Jour. of Med. Sc., Nov., 1902.*

The writer, although admitting that the existence of anæmia splenica is still in a tentative stage, believes that as such a special malady exists of unknown etiology.

It may be defined as a chronic affection, probably an intoxication of unknown origin, characterized by a progressive enlargement of the spleen which cannot be correlated with any known cause, as malaria, leukæmia, syphilis, cirrhosis of the liver, etc. (primary splenomegaly); anæmia of a secondary or chlorotic type (leucopenia); a marked tendency to hæmorrhage, particularly from the stomach; and in many cases a terminal stage with cirrhosis of the liver, jaundice and ascites (Banti's Disease).

After analysing a series of cases the author discusses the symptomatology and pathology of the disease.

1. Anæmia Splenica is characterized by an extraordinary duration. In two cases the patients were known to have had the symptoms for twenty-five years. In the writer's 15 cases, in seven the duration was more than ten years, and in eleven it was over four years.

Very little inconvenience is often experienced, even with a spleen extending below the umbilicus. The majority of O's cases were active business men, whose chief inconvenience was the recurring hæmatemesis and the resulting tardy convalescence after the attacks.

2. Splenomegaly.—A large group of cases with splenomegaly and secondary anæmia exists which are usually easily distinguished from the condition under discussion. In these a cause is usually apparent—malaria, tuberculosis, rickets or syphilis—particularly in children, in whom any state of malnutrition, if protracted, may be associated with

enlargement of the spleen. The anæmia and splenomegaly usually yield to appropriate treatment; at all events there is not the remarkable chronicity. The spleen rarely reaches the colossal size seen in chronic splenic anæmia. The sequences so characteristic of splenic anæmia are not seen. Lastly, while the blood shows the features of a secondary anæmia, there is rarely the exaggerated chlorotic type, and leucoytosis is more common than leucopenia.

It is not always possible to assign individual cases to their proper places, but on the other hand, many of the cases in children conform to the definition of splenic anæmia as given above.

The special feature of the enlarged spleen is the size, which is unequalled in any other disease, except perhaps leukæmia. The average weight in twelve cases collected by Rolleston was 61 ounces. In Boviard's case the weight was twelve and half pounds.

3. Hæmatemesis is a remarkable feature of the disease. Eight of the writer's patients had attacks of vomiting of blood. In a large proportion of cases the hæmorrhages are due to conditions associated with splenic enlargement, and not with cirrhosis of the liver. The source of the blood may be a general diapedesis from the mucous membrane, the most careful search failing to reveal a bleeding point; a bleeding œsophageal varix may also be responsible for the hæmorrhage; Rolleston suggests that the tension exerted by the enlarged spleen on the gastro-splenic omentum may cause a kink and so induce congestion of the gastric veins.

Other hæmorrhages are less common; epistaxis, retinal hæmorrhages, bleeding gums, menorrhagia, and hæmaturia have been recorded.

4. Anæmia even in well defined cases may be slight. It is of the secondary or chlorotic type, the diminution in corpuscles being of a moderate grade. The hæmoglobin is markedly reduced as in chlorosis, and the white cells are usually diminished, except after a hæmorrhage when they are increased. In the extreme anæmia at the close of the disease there may be marked poikilocytosis, with nucleated blood corpuscles.

5. Pigmentation of the skin is rather common, usually a diffuse bronzing as in Addison's disease, but rarely so intense.

6. Hepatic features.—The majority of cases present no symptoms of hepatic derangement; in a few there may be ascites even with a normal liver; whilst in a third group the symptoms are such as to suggest cirrhosis, a fact first pointed out by Banti. The splenomegaly may exist for a long series of years without leading to cirrhosis. The enlargement, in adults at least, is not very marked. Ascites and hæmatemesis do not necessarily mean that the liver is involved.

Further observations are necessary before the relationship of the group of cases in children, particularly the family form of splenomegaly, can be assigned to their true position. Is the accompanying cirrhosis primary or secondary? What forms of hypertrophic cirrhosis occur in children? What are the relations of the family to the others? What is the state of the liver in the cases of primary splenomegaly, the conditions of the blood, the relations of the cases to hæmochromatosis and to Hanot's cirrhosis? These are some of the questions awaiting solution.

The morbid changes throw but little light on the process. It is probably a chronic toxic rather than an infective process, but of the nature and character of the poison we are ignorant.

Treatment.—Of nineteen cases collected by Harris and Herzog, in a study of the subject, fourteen out of nineteen recovered after splenectomy. Three of Osler's cases submitted to this procedure; one remained well three years after, and two succumbed from hæmorrhage after operation. Recurring hæmatemesis is the most important indication for the operation.

The Treatment of Pleurisy with Effusion.

Delafield, Francis, M.D. "The Treatment of Pleurisy with Effusion." *Am. Jour. of Med. Sc., Dec., 1902.*

Delafield enters a strong plea for the early treatment of pleurisy with effusion by aspiration. He believes that aspiration should be performed not simply to remove fluid, but to cure pleurisy as a morbid process. He thinks that aspiration is *the* treatment for pleurisy, and should be performed as soon as the presence of fluid in the chest is made out.

Although the other methods of treatment are seldom followed by death, there is the objection of a long and tedious course. Two months is an ordinary duration and six months is not uncommon. Still further than this, the longer the pleurisy lasts, and the longer the lung is compressed the greater is the extent of pleuritic adhesions, and the greater the vulnerability to tubercular infection.

Two hundred hospital cases of pleurisy with effusion are tabulated to show the benefits of aspiration. Of these none of the patients died, none of them were injured by the operation, and in none of them was the chest infected.

In all of the patients the quantity of fluid in the chest was considerable and occupied the lower part of the pleural cavity .

The fluid taken from the chest was bloody in 25 cases, turbid in 18 cases and clear serum in the rest. The character of the fluid seemed to make no difference. Those with bloody or serous fluid did as well as those with clear serum.

Of the 200 cases, 182 left the hospital entirely cured; 6 left the hospital within ten days after the aspiration, and probably recovered; 6 left the hospital at periods of from seventeen to thirty-six days after the aspiration, the pleurisy was better, but the results were uncertain; 6 left the hospital at the end of from twenty-four to thirty-eight days, not at all improved.

Of the 182 cases which were cured, the length of time which elapsed from the beginning of the pleurisy to the day of aspiration, was as follows:—

7 months	1 case.
90 days	5 cases.
70 to 75 days	3 cases.
60 to 70 days	9 cases.
50 to 60 days	6 cases.
40 to 50 days	9 cases.
30 to 40 days	15 cases.
20 to 30 days	39 cases.
10 to 20 days	71 cases.
5 to 10 days	20 cases.
4 days	2 cases.
3 days	1 case.

It will be seen that in more than one half the cases the duration of the pleurisy before aspiration was between ten and thirty days.

In all of the cases the pleurisy was going on as an inflammation up to the time of the aspiration; the patients had not been at all improved either by nature or by the remedies taken.

That length of time which elapsed from the aspiration to the entire cure of the patient was as follows:—

Within one week	64 cases.
" two weeks	138 cases.
" three weeks	158 cases.
" four weeks	169 cases.
" six weeks	179 cases.

As to the number of aspirations: the operation was done once in 142 cases, twice in 45 cases, three times in 9 cases, and four times in 4 cases.

In private practice the results are better than in the hospital. In the fortunate cases, within twenty-four hours after one aspiration there is no more fluid and no more pleurisy. In a large number of cases the pleurisy is cured within a week, and none of them ought to be sick longer than two weeks.

F. G. Finley.

Pathology.

UNDER THE CHARGE OF J. GEORGE ADAMI.

On the Relationship between Tropical and Amœbic Abscess of the Liver and Dysentery.

Leonard Rogers. Tropical or Amœbic Abscess of the Liver and its Relationship to Amœbic Dysentery. *British Medical Journal, Sept. 20th, 1902.*

The pathology of the large solitary abscess of the liver is still in a very confused state. Thus, as pointed out by Dr. Leonard Rogers in the introduction to his paper given at the Manchester meeting of the British Medical Association, in Allbutt's System of Medicine, Davidson, writing upon Suppurative Hepatitis, regards the condition as produced by ordinary pyogenic organisms acting on a liver predisposed to inflammatory change by life in the tropics, while Lafleur, writing on Amœbic Abscess of the Liver, holds that about half the cases of the disease are associated with amœbæ, which either themselves directly cause the pus formation, or act as carriers of the pyogenic organisms into the liver. It will be seen that even Lafleur, whose work with Councilman upon this subject has rendered him one of the leading authorities upon the subject, is far from being positive as to the relationship between the amœbæ and all cases of tropical abscess. He admits, it may be explained, the existence of a group of what he terms "idiopathic abscesses," causing like symptoms, but not associated with dysentery and not yielding amœbæ on examination.

Rogers, therefore, has done a valuable work in making a full study of this matter at Calcutta. He notes that the statement sometimes made that natives rarely suffer from the disease is totally erroneous as applied to India, and he is able to report a study of clinical and post mortem observations upon more than thirty cases. By a careful technique he has obtained results so constant that, at last, it would seem safe to draw conclusions regarding the ordinary form of solitary abscess of the liver, at least so far as it is met with in India. He had previously noted (what has been observed by others, though apparently not put to practical application) that while the thick pus of a liver abscess is often free from amœbæ yet, if a scraping of the wall be examined, they can be found with great ease. His procedure was to have ready two sterile test tubes and when the abscess was opened by one of his surgical colleagues, some of the free pus was

placed in the one, a small scraping from the wall of the abscess in the other. From this material, cultures and films were made and in it he searched for the amœbæ. The results were remarkably consistent.

In fourteen cases this double examination was made, in three others the scraping from the wall of the abscess was alone examined. In eight other cases pus only was obtained. In twelve of the seventeen cases in which thus a scraping was made from the wall of the abscess, the material was obtained at the time of operation and in all of these without exception, amœbæ were easily found, and that nearly always in the first slide examined. In four of the five cases in which the scrapings were obtained some days after the abscess had been opened, the amœbæ were readily found in an active condition; in the fifth, which was examined on the twelfth day after operation, when there was only a little thin discharge from the wound (quite different in character from the thick pus obtainable upon first opening the abscess), no amœbæ could be found. In other words, in sixteen out of seventeen cases in which scrapings were taken from the wall of the solitary abscess, the amœbæ were found. The only case in which they were not found is readily explainable.

Of the twenty-two examinations of the free pus from the abscess, the amœbæ were recognized in only four .

In twenty cases of liver abscess, in which the walls were examined for amœbæ post mortem, amœbæ again were always found, with one exception similar to that in the previous series, for it was a case of a liver abscess which had been opened fifteen days before death. Here, though the amœbæ were absent in the liver, they were found in chronic ulcers in the cæcum. With the exception of these two cases, which were not examined until ten to fourteen days after the abscesses were opened, Rogers has obtained a series of thirty-five consecutive cases in which he was able to demonstrate the relationship of the amœbæ to the disease process.

The next point to be considered, is whether the amœbæ, as such, cause the disturbances, or whether some pyogenic organism be present so constantly or so frequently as to explain wholly or in part, the development of the "tropical abscesses." In this connection Rogers found, out of twenty-four cases in which cultures were made from the pus, staphylococci were obtainable in only eight and in two of these only one or two colonies developed, so few that they might have been accidental contaminations. In one of these two no cocci could be seen in staining the pus. In one case a short oval bacillus was obtained. In the remaining fifteen the pus was sterile. In the pus from the post mortem cases staphylococci were found in eight

out of thirteen, together with streptococci in one. We thus have altogether thirty-seven cases yielding cocci in sixteen, and in these sixteen there were six in which the abscess had been opened previously and in which there was a possibility of infection from without. At the best, therefore, suppurative organisms were found in fewer than half the cases, and the obvious conclusion, is that the amœba is the only constantly found organism in tropical abscess of the liver. In this connection it should be recalled that the contents of these liver abscesses is not proper pus—is not, that is to say, a fluid containing pus corpuscles. It is a necrotic, granular debris in which singularly few cell bodies are to be made out.

It is next to be enquired what is the relationship between dysentery and liver abscess. We now know that in many parts of the world dysentery is associated with the presence, in the large intestine and its walls, of a bacillus first isolated by Shiga in Japan, since isolated by many other observers in the Philippines, the United States, Germany and elsewhere. Rogers notes that he has discovered the same in cases of catarrhal dysentery in Calcutta. He also notes that liver abscess is rare in the dysentery of temperate climes and in the epidemic dysentery of armies and of Indian gaols. There are, it is true, some divergences in the properties of the bacilli isolated by observers in different countries, but all of them have the property of agglutinating with the blood of patients suffering from the disease. Has the tropical abscess any definite connection with dysentery and, if there be such a connection, is it only with one particular form, the so-called 'amœbic dysentery' and, finally, does this particular form of dysentery differ from the dysentery set up by the Shiga bacillus clinically and histologically, so as to permit a clear distinction between the two?

Out of twenty-four cases of tropical abscess, upon which Rogers had full notes, in fourteen or 58.3 per cent. there was both a previous history of dysentery and lesions of the disease were found *post mortem*. In six more there was no history of previous dysentery, although this had been enquired for, but lesions of the disease were found *post mortem*. In three more there was a previous history of dysentery, but no lesions were found *post mortem*. (This recalls one of our Montreal cases in which, although we found the amœbæ in the liver *post mortem*, the colon was perfectly healthy). In only one case was there neither a history of dysentery nor lesions in the colon *post mortem*. Thus, in 95.83 per cent. of this series of cases of tropical abscess, there was either a history of previous dysentery, or the actual existence of lesions. Dr. Rogers confirms and enlarges upon this series, by a study of thirty-nine cases abstracted in the older *post mortem* records of the Calcutta Medical College Hospital. Here, out of 39 cases in which the notes

were sufficiently full, he obtained a total of 89.12 per cent. of either clinical or *post mortem* evidence of dysentery. The relationship between the two would, therefore, appear to be clear. Dysentery is constantly, or almost constantly a forerunner of tropical abscess of the liver.

Regarding now the type of dysentery, Rogers points out that this is distinct, so much so, that he and others were able to distinguish between it and ordinary epidemic dysentery seen in goals and elsewhere. The ulceration is characteristic; though the ulcers vary in size, the cæcum and ascending colon may be covered with raised yellowish white, sloughy, gelatinous material forming very extensive large ulcers and then the unaffected portions of the gut are bounded by the well marked raised borders of the ulcerated areas, a thin dark line of intense injection being seen at their boundaries, the normal tissue appearing to be depressed below the level of the diseased portions. This is just the opposite to the condition met with in the ordinary form of dysentery, in which the ulcers are depressed, the intervening mucosa raised. This Rogers regards as the most characteristic feature of the amœbic ulcer. In addition there may be, not these large ulcers, but a smaller form, and this is perhaps the commoner. These also tend to be in the form of raised patches, with a well defined margin, often showing a ring of congestion and with a pale yellow surface due to the gelatinous infiltration of the submucous coat. These ulcers may be very few in number, or may be scattered over the surface for the greater length of the large bowel. The unaffected mucous membrane, and this appears to be of some importance, seems in general to be quite healthy. Except in very chronic cases, there is no general thickening of the whole of the mucous membrane of the bowel, which is so characteristic of the ordinary catarrhal form of dysentery. Finally, Rogers notes some ulcers which may be so small as to appear simply as red dots, in the centre of which on close observation, a minute pale yellow, superficial ulceration can be detected, again surrounded by a red ring of congestion. Excavation of the ulcers, the yellow material sloughing out, is rare.

The distribution of the disease is of some importance. In all cases where more than a few ulcers are present, the cæcum is most markedly affected. The largest form of ulceration is commonly limited to the cæcum or to that and the ascending colon. Even the small ones do not, as a rule, affect the sigmoid flexure and rectum. Thus the distribution and the absence of thickening and of inflammation between the ulcers constitute, according to Rogers, the most characteristic features differentiating the amœbic from the ordinary catarrhal form of the disease. It is scarcely necessary to state that, as determining the nature, the amœbæ are easily found in the floors of the ulcers, the

yellow infiltrated material often showing numerous active amœbæ in every field of the microscope.

Coming at the present time, this paper seems to be of distinct importance. More especially among workers in India, there has been a tendency to doubt the existence of amœbic dysentery and, particularly during the last year, the attention paid to the bacillary form of the disease has caused no small confusion. But these observations of Rogers, showing as they do, how intimately the amœba is connected with the solitary abscess of the liver of the tropics, showing the intimate relationship between those tropical abscesses and dysentery and demonstrating as it does, that amœbic dysentery has special features sharply distinguishing it from the ordinary catarrhal disease, are of high value. We are pleased to find that they more than confirm the well-known work by our colleague Dr. Lafleur upon this subject.

Thus to sum up; these observations of Professor Rogers prove conclusively the following points:—

(1) The large solitary abscess of the liver seen in India, is always brought about by the presence of, or is associated with, *amœbæ dysenteriæ.*

(2) That in more than 95 per cent. of such tropical abscesses, there is to be determined the existence or pre-existence of dysentery affecting the large bowel.

(3) That it is possible to distinguish sharply between the two different forms of dysentery, (*a*), epidemic catarrhal dysentery, which has associated with it the Shiga bacillus and (*b*) amœbic dysentery, the histological changes in the large bowel in these two conditions being quite distinct.

J. G. Adami.

Reviews and Notices of Books.

Atlas & Epitome of Otology. By Gustav Bruhl, M.D., of Berlin, with Collaboration of Adam Potitzer of Vienna. Authorized Translation from the German. Edited By S. MacC. Smith, M.D. Clinical Professor of Otology, Jefferson Medical College, &c. 244 Colored Figures on 39 Lithographic Plates and 99 Text Illustrations. Philadelphia & London. W. B. Saunders Co., 1902.

This is another of those admirably illustrated clinical handbooks which those enterprising publishers have recently placed within reach of all who are interested and in a position to devote time and attention to the study of the recognized special branches of medicine and surgery.

The first part of this volume consists of supurb colored illustrations with brief descriptions of each, thus constituting a very complete exposition of the normal and pathological anatomy of the auditory apparatus.

The second part consists of 277 pages of text, which includes a brief but thoroughly practical description of the normal anatomy and physiology of the ear, and a concise but most instructive account of all the diseases of that appendage from a clinician's standpoint, both as regards diagnosis and treatment. Malformations, tumors and general diseases associated with or tending to induce aural complications are also carefully considered. The work is an eminently practical one and should be in the library of everyone who aspires to the attainment of a working knowledge of otology.

Bacteriological Technique. A Laboratory Guide for the Medical, Dental and Technical Student. By J. W. H. Eyre, M.D., F.R.S., Edin., Bacteriologist to Guy's Hostiptal etc. 8 vo., 375 pages with 170 illustrations. Philadelphia and London; W. B. Saunders & Co., 1902. Cloth, $2.50 net.

Of English bacteriologists, Dr. Eyre has most actively and most consistently advocated the establishment of standard methods for bacteriological research along lines similar to those laid down by the Committee of American Bacteriologists whose "procedures" are so well-known on this continent. He has, for now some years, been interested in the study of bacteriological methods, and this work gives

in very clear form, those methods which he has either elaborated himself, or has found, by practical experience, to be the most satisfactory, more particularly for the general student. Indeed, as he remarks in his preface, the bulk of the matter is simply an elaboration of the typewritten notes distributed to his class in practical bacteriology. The work has not, by any means, come before us as a complete manual of bacteriology, but aims at giving clearly and accurately the details of technique, which too often are passed over in silence. So far as we have been able to follow the work, it fulfils admirably the purpose for which it is designed. It is essentially practical and, what is more, well up to date as regard methods of staining and preparation of media. Add to this it is well illustrated and clearly printed and should, we think, become a most popular laboratory handbook.

PRACTICAL DIETETICS—WITH SPECIAL REFERENCE TO DIET IN DISEASE. By W. GILMAN THOMPSON, M.D., Professor in the Cornell University, Medical College in New York City, &c., &c. Second Edition, enlarged and thoroughly revised. New York, D. Appleton & Co., 1902.

This is a large volume of 814 pages with complete index, cross references and table of contents, the latter so arranged as to show at a glance where any information on any part of the subjects discussed may be found. Such an arrangement makes the size of the work unobjectionable. The great importance of suitable diet under all conditions, both in health and disease, justifies the exhaustive manner in which the whole subject has been discussed by the author.

The subject matter is divided into nine parts;—viz: Food and food preparations, stimulants, beverages, condiments, cooking—food preparation, the quality of food required, foods required for physical conditions, food digestions—conditions which especially affect digestion, the general relation of food to special diseases, diseases which are caused by dietetic errors, administration of food to the sick, diet in disease, rations dietaries. There is also an appendix containing receipts for invalid food and beverages, suitable for fevers and convalescence from acute illnesses.

So little is taught in medical schools on the subject of dietetics, it may be said this important part of the physician's education must be acquired after he leaves college. This book will be of great value to every medical man who desires to practice his profession on sound rational principles, and to leave nothing undone which may contribute to his success, and we cordially recommend it as a standard work which should be accessible to every medical practitioner.

NOTHNAGEL'S PRACTICE. DISEASES OF THE BRONCHI, LUNGS AND PLEURA. PROF. FRIEDRICH A. HOFFMANN, PROF. O. ROSENBACH and DR. E. AUFRECHT. Edited with Editions by JOHN H. MUSSER, M.D. Authorized Translation from the German, under the Editorial Supervision of ALFRED STENGEL. W. B. Saunders & Co., Philadelphia. Canadian Agents, J. A. Carveth & Co., Toronto.

This important volume is opened by an exhaustive article on the Bronchi, by Hoffmann of Leipzig. After dealing with the anatomy, malformations and injuries of the bronchi, the bulk of the article is devoted to foreign bodies and to bronchitis.

An attempt has been made to classify bronchitis on an etiological basis, and Marfans division into specific and non-specific forms is regarded as the most satisfactory, although obviously limited by a very imperfect bacteriological knowledge of the subject. Owing to this impossibility of a scientific classification of the subject, the various causes of the disease are discussed seriatim, followed by the general symptomatology and the varieties of the disease. The Editor regards a streptococcus infection as an indication of a severe type of the disease, marked by longer duration, greater fever and prostration, prolonged course, and of localization of rales and presumably of lesion.

Capillary bronchitis is considered under the heading of bronchitis, although the Editor adds a note stating his belief that this form of the disease is really a catarrhal pneumonia—a belief very generally accepted on this continent.

Although the drug treatment of bronchitis is fully described, the author has evidently very little faith in their efficacy. He leans strongly to the employment of hydriatic methods as the best and most effective means of dealing with this malady, influencing favorably every phase of the disease. Inhalations are regarded as next in value to hydro-therapeutic measures. These sections are well worth careful perusal, even if they do not meet with general acceptance.

A comprehensive article on asthma, emphysema and atelectasis are also contributed by Hoffmann.

The subject of inflammation of the lungs is dealt with by Aufrecht of Magdeburg-Altstadt.

The treatment of the subject is full and scholarly. It is illustrated by temperature charts and numerous tables, which are of the greatest value and interest for reference.

Whilst supporting the use of moderate doses of alcohol in debilitated subjects, the author is strongly opposed to the use of this remedy as

a routine measure and in large doses, believing that it frequently converts excitation in prostration. He is emphatic in the value of quinine, and strongly recommends its use in severe cases after the fifth or sixth day. About seven and a half grains of the hydrochlorate of quinine, dissolved in half an ounce of water is administered hypodermically three times daily, and is said to produce a marked amelioration in the general condition. The mortality, as shown by a table, also seems to indicate a marked lessening of the mortality.

The other forms of pneumonia, cancer, thrombosis, embolism, abscess, and gangrene are also treated by Aufrecht.

Rosenbach of Breslau deals with tumors of the pleura and pneumothorax. We cannot too highly express our appreciation of this work. The difficult and laborious task of translation has been performed in a satisfactory manner, and the additions of the editor materially enhance the value of the book.

Cellular Toxins or the Chemical Factors in the Causation of Disease. By Victor C. Vaughan, M.D., L.L.D., Professor of Hygiene and Physiological Chemistry, and Director of the Hygienic Laboratory in the University of Michigan, and Frederick G. Novy, M.D., Sc. D., Junior Professor of Physiological Chemistry in the University of Michigan. Fourth edition revised and enlarged, 8vo., pages 487, Lea Bros. & Co., Philadelphia.

That this well-known book by Professors Vaughan and Novy fills a want, is evidenced by the fact that it has now reached its fourth edition. It contains a mass of material bearing upon the chemical substances related to the production of disease, which is not easily to be found in any other work in our language. It is interesting to observe how, in each edition, the stress laid upon different groups of substances is changed. In the first edition, if we remember aright, the ptomaines obtained the fullest treatment. In the last edition more stress was laid down upon bodies of the nature of nucleins. In the present edition there are important chapters on such subjects as the Specific Precipitins, the Lysins and the Agglutinins, with a statement of all the recent and remarkable observations upon bacteriolysis, hæmolysis and cytolysis, while naturally Erlich's theory of immunity is discussed at considerable length. The last chapter, short but suggestive, is also new, that upon the autogenous diseases, that is to say, upon diseases brought about by the agency of the metabolic products of the animal body.

The subjects treated in this work, are many of them singularly complicated, nor have we by any means reached an ultimate and fixed

state in our knowledge regarding them. The work cannot be regarded in any way as an ordinary textbook; its style, indeed, is not that fitted for beginners; but is of distinct value for the advanced students. From its nature we think that perhaps the authors have made a mistake in not retaining the references which were present in the previous editions. They give, it is true, references to newer work described by them and, as they point out, the student will find the references to earlier work given in the earlier editions. This, however, necessitates the student possessing those earlier editions, at least the last.

DISEASES OF THE PANCREAS AND THEIR SURGICAL TREATMENT. By A. W. MAYO ROBSON, F.R.C.S. Eng., Senior Surgeon, Leeds General Infirmary; Emeritus Professor of Surgery, Yorkshire College, Victoria University, England; and B. G. A. MOYNIHAN, M.S., (Lond.), F.R.C.S. Eng., Assistant Surgeon Leeds General Infirmary; Consulting Surgeon to the Skipton and to the Mirfield Memorial Hospitals. Octavo Volume, 293 Pages, Illustrated. W. B. SAUNDERS & Co., 1902. Canadian Agents, J. A. CARVETH & Co., Toronto. Price, $3.00.

It is only within a comparatively short time that the diseases of the pancreas have been studied and a still shorter time since they have been treated surgically. Mr. Mayo Robson's name has been long associated with advanced surgical work, in connection with the pancreas and liver and the influence of gall-stones in the production of diseases of the pancreas has been frequently insisted on by him. He was the first to seriously advocate drainage of the gall-bladder for chronic pancreatitis, in fact, Mr. Mayo Robson has been identified for some time with the surgery of this region and we welcome any work on the subject of diseases of the pancreas and their surgical treatment, for which he and his fellow worker Mr. Moynihan are responsible.

It is stated that the work has a twofold object, *viz.*, to record and to review the work done in the past and to indicate as far as possible the scope and trend of future research. The work first describes the anatomy of the pancreas, the experimental work on this organ and pancreatic diabetes, quoting at length from the work of Opie of Johns Hopkins Hospital on the subject. Injuries of the pancreas are next described and then the various forms of pancreatitis, in the acute form early exploratory operation being recommended. Pancreatic calculus has a chapter devoted to it. Cysts are next described and their frequent relation to the impacted calculus mentioned. A chapter on new growths of the pancreas completes the work.

It is a work that all surgeons and many physicians will read with

pleasure and profit. It is well printed and well illustrated and free from typographical errors.

SAUNDERS MEDICAL HAND-ATLASES. ATLAS AND EPITOME OF TRAUMATIC FRACTURES AND DISLOCATIONS. By Professor DR. H. HELFERICH, Professor of Surgery at the Royal University, Greifswald, Prussia. Authorized Translation from the German, edited by JOSEPH C. BLOODGOOD, M.D., Associate in Surgery, Johns Hopkins University, Fifth Edition Revised and Enlarged, W. B. SAUNDERS & Co., 1902. Canadian Agents, J. A. CARVETH & Co., Toronto. Price, $3.00 .

This volume, which is one of the series of Saunders' Medical Hand-Atlases, maintains the high standard which has characterized the other works in this series. The plates, the majority of which are beautifully coloured, present, as no words could, the conditions found in the various fractures and dislocations. The characteristic deformity exhibited by the patient, is shown in each case and the companion illustration shows the condition present on dissection. The great aid afforded by this means for a clear understanding of the nature and cause of the deformity may be readily appreciated. Brief notes are added to the illustrations calling attention to their salient points. The value of the work is increased by a concise description of the etiology, symptomatology, prognosis and treatment of the injuries dealt with. The sections on treatment while brief are adequate and enhance the value of the work as a whole. It can be strongly recommended to the medical student and the general practitioner, as well as to the surgeon.

Correspondence.

AMERICAN MEDICAL TEMPERANCE ASSOCIATION.

To the Editors of the Montreal Medical Journal.

Dear sirs:—Three times during the last half century medical manifestos have been issued giving the opinion of physicians on alcohol. The first was issued in 1839, and was signed by 86 persons. The second in 1847, and was signed by 2,000 physicians, and the third appeared in 1871, with the signatures of over 4,000 physicians, including the names of many leading physicians in all parts of the world. A fourth declaration of opinions is now being circulated for signatures, and reads as follows:—

The following statement has been agreed upon by the Council of the British Medical Temperance Association, the American Medical Temperance Association, the Society of Medical Abstainers in Germany, and leading physicians in England and on the continent. The purpose of this is to have a general agreement of opinions of all prominent physicians in civilized countries concerning the dangers from alcohol, and in this way give support to the efforts made to check and prevent the evils from this source.

In view of the terrible evils which have resulted from the consumption of alcohol, evils which in many parts of the world are rapidly increasing, we, members of the medical profession, feel it to be our duty, as being in some sense the guardians of the public health, to speak plainly of the nature of alcohol, and of the injury to the individual and the danger to the community which arise from the prevalent use of intoxicating liquors as beverages.

We think it ought to be known that:—

1. Experiments have demonstrated that even a small quantity of alcoholic liquor, either immediately or after a short time, prevents perfect mental action, and interferes with the function of the cells and tissues of the body, impairing self-control by producing progressive paralysis of the judgment and of the will, and having other markedly injurious effects. Hence alcohol must be regarded as a poison, and ought not be classed among foods.

2. Observation establishes the fact that a moderate use of alcoholic

liquors, continued over a number of years produces a gradual deterioration of the tissues of the body, and hastens the changes which old age brings, thus increasing the average liability to disease (especially to infectious disease), and shortening the duration of life.

3. Total abstainers, other conditions being similar, can perform more work, possess greater powers of endurance, have on the average less sickness, and recover more quickly than non-abstainers, especially from infectious diseases, while they altogether escape diseases specially caused by alcohol.

4. All the bodily functions of man, as of every other animal, are best preformed in the absence of alcohol, and any supposed experience to the contrary is founded on delusion, a result of the action of alcohol on the nerve centres.

5. Further, alcohol tends to produce in the offspring of drinkers an unstable nervous system, lowering them mentally, morally, and physically. Thus deterioration of the race threatens us, and this is likely to be greatly accelerated by the alarming increase of drinking among women, who have hitherto been little addicted to this vice. Since the mothers of the coming generation are thus involved the importance and danger of this increase cannot be exaggerated.

Seeing, then, that the common use of alcoholic beverages is always and everywhere followed, sooner or later, by moral, physical and social results of a most serious and threatening character, and that it is the cause, direct or indirect, of a very large proportion of the poverty, suffering, vice, crime, lunacy, disease and death, not only in the case of those who take such beverages, but in the case of others who are unavoidably associated with them, we feel warranted, nay, compelled to urge the general adoption of total abstinence from all intoxicating liquors as beverages as the surest, simplest and quickest method of removing the evils which necessarily result from their use. Such a course is not only universally safe, but is also natural.

We believe that such an era of health, happiness and prosperity would be inaugurated thereby that many of the social problems of the present age would be solved.

This declaration has already received the signatures of over 1,000 physicians in all parts of the country. I have been appointed chairman to present this manifesto to American physicians for their endorsement. I should be very glad to receive the name, title and address of any physician who is willing to aid by his signature to correct public sentiment and assist in the prevention of one of the great evils of the age. This is purely a scientific effort, for the purpose of having a general consensus of opinion of the leading physicians

of the world, and it is assumed that American physicians are equally enthusiastic and prompt to lend their signatures to this statement as in the wine-drinking countries of Europe. A postal card with address and title is earnestly solicited from every medical man who would like to be represented in this great movement for a clearer comprehension of the subject. Address,

T. D. CROTHERS,
Hartford, Conn.
Secretary, American Medical Temperance Association.

THE

Montreal Medical Journal.

A Monthly Record of the Progress of Medical and Surgical Science.

EDITED BY

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VOL. XXXII. MARCH, 1903. No. 3.

ON THE HOSPITALS FOR INFECTIOUS DISEASES IN MONTREAL.

All truly interested in the well-being of our community must have experienced a feeling of profound relief when at last, after three years wretched obstruction, the City Council finally ratified a scheme for the provisions of infectious hospitals. Plan after plan had been proposed only to be defeated; the Council refused to build a common hospital for the accommodation of all cases occurring in Montreal—at one time it refused to do anything at all in the matter—then it declared itself willing to agree to the establishment of a double hospital, one for the French-speaking members of this community, another for the English, but when it came to providing a site for the same, the opposition was such that the scheme had to be withdrawn. Finally, the heads of the general hospitals, French and English, in the city, came forward and offered to provide hospital accommodation for the members of the two communities, and the plans proposed by them have been accepted.

Theoretically this is a step in the wrong direction. It is a duty of those elected as representatives of the community to build and maintain

a hospital for the care of infectious cases and that duty has been recognized all over the civilized world. The City Council is bound to provide for the safety of the community in order that the community as a whole may be protected from infection and the health of the people kept at as high a standard as possible and these duties should not be delegated to any one else. The city has no right either to demand or to expect that others should take up this work. All the same the arrangement that has been determined upon is, from many points of view, greatly superior to the establishment of a hospital governed by the City Council. Had the city undertaken this work we may be sure that, in the mere building and equipment, much of the public money would have gone astray, with the result that the building and equipment would not have been of the first order. Every contract, once the hospital was open, for coal, drugs, food and other necessaries, would have been determined, not by considerations of the welfare of the patients but by political considerations and the pecuniary advantage to be gained by certain aldermen; nursing and medical attendance would have been cut down to the lowest possible amount to the detriment of the patients in the hospital. As it is, we may feel assured that both of the hospitals will be built in accordance with the most modern ideas of what is necessary for the treatment of those suffering from exanthematous diseases. There will be no waste of money and no boodling; nursing and medical attendance will be of the first order and, not least, the wards will also be open for teaching purposes. The outer world does not understand that the presence of medical students in the wards of a hospital is a distinct advantage to that hospital. They regard that presence as often harmful to the patients. As a matter of fact it may be laid down with confidence that nothing conduces more to the thorough and scientific treatment of patients than does the attendance of medical students: the teaching of the same demands of the attending staff that the cases are thoroughly studied. It prevents slipshod methods. It is those hospitals in all parts of the world, that are thus thrown open to medical students, in which the patients receive the best attendance and in which the highest standard of efficiency is attained. The two infectious hospitals will now be directed and managed by those who have no personal interest in making money out of them. The medical attendants, resident and consulting, will be the best that can be selected, the nurses probably will be those who have already undergone some years training in the general hospitals of the city, and now undertake a course of training and study in the infectious hospital in order to complete their knowledge of what, in private practice, will be for them some of the most frequent and important cases with which they have to deal.

From what has already been said during the course of the agitation over these hospitals, the private practitioners of the city are assured of the privilege of sending their patients to the hospitals and of attending upon them personally when they so desire, while provision will be made for well-equipped private wards. The hospitals, in short will be in competent hands and, for the health of the city this in itself is a matter of the first importance, since now, instead of a householder fearing to send his child to the hospital, everyone will be only too glad to utilize the hospital in order to prevent the many evils which attend the isolation and quarantining of private houses ; the sending away of the patients will thus in itself materially reduce the chances of infection of others in the household.

We still have to learn how the money is to be raised to build the English and French hospitals respectively. We still have to learn also where the West End Hospital is to be situated. We have, however, such confidence in those who have carried the matter through to the present situation that we have no fear that these matters will not be determined in a manner that is thoroughly satisfactory.

One word more deserves most assuredly to be said. To Alderman Ames, the Chairman of the Health Committee of the Council, our citizens of all races and creeds owe a heavy debt of thanks. Without his steady perseverance throughout all these years we should still be in the position of having no proper scheme before us. He has borne the brunt and heat of the fray and if the present scheme is not that which he, during last year, has so urgently pushed forward, our thanks are none the less owing to him. We can well understand his contention that the city should undertake this matter, and cordially agree with him that the site upon Fletcher's Field was the ideal site for this purpose. Yet taking everything into consideration, we believe that, for the good of the community and for practical purposes, this final arrangement is the best; but believing this, we realize all that he has done to bring about a solution of the difficulty.

Proceedings of the McGill Medical Society of Undergraduates.

POTTS' DISEASE—SYMPTOMS AND DIAGNOSIS.

BY

D. A. McKechnie, '03.

The signs and symptoms of Potts' Disease or as it is sometimes called tuberculous caries of the spine, vary with the stage of the inflammatory process and its situation, but for practical purposes the following are the most important symptoms to recognize and the ones most constantly present: pain, rigidity, deformity, abscess and paralysis.

In a study of 84 cases, H. P. Wolley, of Chicago, found that family history was of little value in the diagnosis, and that the two sexes were about equally affected. Rigidity was present in every one of the 84 cases and kyphosis or backward curvature of the spine in 76. In 31 cases the deformity was in the dorsal region, in 21 in the dorso-lumbar, in 19 in the lumbar, and in 5 in the cervical, thus leaving 8 cases without deformity.

Pain was almost invariably present and generally felt at some point distant from the seat of the disease. 15 cases developed psoas abscess, 5 developed lumbar and 3 developed cervical.

Only 3 gave evidence of paraplegia.

The clinical picture of the disease may be briefly outlined as follows: The child will early complain of pain, and generally in the parts of the body supplied with sensation, by the nerves issuing from the diseased area of the spinal canal. The pain will be increased on movement, especially upon jumping or on flexing or rotating the spine. After a time the child is unable to stand upright unsupported and shows a tendency to lean the body forward or to support it by resting the hands on the knees. If asked to pick up anything, he does not bend his back but reaches the ground by bending the knees and holding the back straight. Later a prominence of one or more vertebrae appears, and if the disease is not arrested by proper treatment, deformity will continue, the patient will become stunted in his growth (and dwarfed) and the typical hump or round back is produced, which lasts for life.

In other cases the disease will go on to the formation of abscess,

which if not properly drained and the strictest antiseptic precautions taken, may lead to a long-continued suppuration, death eventually resulting.

To consider the symptoms in more detail:—

Pain—This is an almost constant factor, although in the early stages of the disease, it may not be especially prominent. It is of two main types—the local and the referred.

Local pain is felt over the spines of those vertebrae which are diseased. It can be elicited by pressure or percussion over the spines or perhaps more effectually by pressing upon the transverse processes and so causing rotation of the vertebral bodies. Movements of the spine will likewise cause local pain and the same result can be brought about by a sharp blow on the head or nates, thus causing a jarring of the vertebral column.

Referred pain is felt in the parts supplied with sensation by the nerves issuing from the diseased portion of the spinal column, and hence differs in situation according to the region of the vertebræ affected.

If the lumbar region is the site of the disease, the nerves being pressed upon and irritated as they issue from the inter-vertebral foramena, of this area, will produce pain which is referred down the legs.

If the dorso-lumbar region is affected, the pain may follow the last dorsal nerve, and be felt in the lower part of the abdomen or in the gluteal region. From the lower dorsal region pain is often referred to the epigastrium and a child may complain of stomach ache from such a cause. From the upper dorsal and lower cervical areas, pain extends down the arms, whilst if the upper cervical region be diseased, the pain is felt along the course of the cutaneous muscles of the cervical nerves.

Rigidity.—If anything this is a more constant symptom in spinal caries, than pain. In the early stages of the disease, it is the result of involuntary muscular spasm, the object being to fix and immobilize the spine, that less pain may be produced.

This is the symptom which is made more apparent on asking the patient to pick up something from the floor, to do which, he gradually lets himself down with a perfectly rigid back and comes into a sitting or squatting posture. The body is raised in a similar manner by resting the hands upon the thighs. When told to move about he walks as though on ice, sliding and shuffling along so as to avoid the jar of successive steps. When standing it is noticed he fixes the upper part of the column by the aid of the trapezii and other muscles whose action at the same time raises the shoulders and throws the arms out from the sides. It is also often noticed that there is an "involuntary

transference" of the weight of the parts above the diseased area, to the hips, the patient placing his hands upon the hips and keeping the muscles of the arm tense.

Deformity.—Osseous ankylosis is present in almost all cases of Potts' Disease, although it is possible for recovery to take place without it, when the condition is recognized early and treated accordingly.

After the disease has continued for a time, the processes of one or more vertebræ may be noticed to distinctly project beyond the general line of the column, but it should be remembered that caries of the bodies of the vertebræ may take place to a considerable extent with little or no angular curvature being apparent.

The extent and character of the deformity depends principally upon the number of vertebræ affected and their region. A true angular deformity may result when only two bones are involved, the body of the upper vertebræ being welded to that of the lower so as to produce a wedge-like mass.

In the lumbar region there is usually little or no displacement, the disease being limited to the centres of the bones, so that the sides escape and preserve the integrity of the spinal column. When a large number of vertebræ are affected, as is common in the dorsal region, the curvature is never angular, but the whole section of spine becomes defluxed and kyphetic in type. Owing to the length of the spines of the dorsal vertebrae, the projection in this region is more pronounced, while in the cervical region there is rarely much deformity owing to the small size of the vertebræ and deep position of their spinous process. Secondary changes in the shape of the thorax accompanying the more advanced cases of caries in the dorsal region, viz., the sternum becomes more convex anteriorly in order to compensate for the diminished vertical measurement of the thorax, and the ribs become so crowded together that the intercostal spaces are almost obliterated.

All those changes tend to stunt the growth of and dwarf the person, so that in time he constitutes the typical hunchback.

Abscess.—This is the most serious symptom in spinal caries and it commonly makes its appearance as the disease progresses, although in some cases it occurs before any other signs are apparent, except pain, and always before there is any deformity. However, it must not be supposed that abscess is present in all cases. In children especially we often meet with great spinal deformity, without having any suppuration, but in adults it is very rare to see angular curvature without abscess formation.

When pus forms, the situation of the abscess depends mainly upon the part of the spine affected, as when the cervical vertebræ are

diseased, the abscess pushes forward behind the pharynx and often by its size causing some difficulty in swallowing and breathing. Left to itself it may burst and discharge into the pharynx, or it may travel downwards behind the œsophagus into the posterior mediastinum, or more commonly the pus finds its way into the posterior triangle at the side of the neck, being guided thither by the prevertebral fascia.

When the dorsal spine is affected the abscess may again take different directions, most frequently it passes backwards between the vertebral ends of the ribs to form a dorsal abscess 3 or 4 inches from the spines, or it may extend between the ribs and parietal pleura along the course of the intercostal vessels, coming to the surface at the point where the lateral cutaneous nerves are given off; not uncommonly it works its way downward passing under the internal arcuate ligament of the diaphragm, thus entering the psoas sheath and giving rise to a psoas abscess in the groin.

When the lumbar spine is diseased, either a lumbar or psoas abscess may result. The first gives rise to a fluctuating swelling situated between the last rib and crest of ilium. The psoas abscess is formed as stated above, by the pus entering the sheath of the psoas muscle in which it travels downwards. At the brim of the pelvis, it usually burrows outwards forming a large fluctuating tumor in the iliac fossa. As the accumulation increases it passes on beneath Poupart's ligament behind and external to the femoral vessels, finally pointing near the internal saphenous opening in the neighborhood of the lesser trochanter.

Occasionally the pus finds its way down into the pelvis instead of passing under Poupart's ligament and in other rare cases the abscess has extended down the leg and been evacuated at the side of the tendo Achillis.

Hence it is of importance to know the different courses an abscess may take and how it may point even at some distance from the actual seat of disease.

Paraplegia.—This is fortunately not a common symptom or result, it only occurring in the worst cases or in those where proper treatment has been neglected. Is said to occur in about 7 per cent. of cases.

Narrowing of the spinal canal sufficient to cause compression of the cord, rarely occurs as the direct result of angular curvature. When symptoms of paralysis appear, it is found these are due, in the majority of cases to the accumulation of inflammatory products, granulation tissue, caseous material or pus between the bone and dura mater.

In rare cases the pressure is caused by a chronic abscess pushing back the common ligament against the cord, but more commonly than this, the ligament itself is invaded by tuberculous, granulation tissue finally perforating and directly exposing an area of the cord.

The signs of paraplegia can be divided into those arising from pressure on the roots of the nerves and those due to pressure on the cord itself.

The production of peripheral pain, as a result of compression and irritation of the nerve roots has already been referred to, but it may be noted that this frequently is accompanied by hyperasthesia of the skin, and later, when the conducting power of the nerves is impaired, by anæsthesia.

When considering the symptoms arising from pressure upon the cord, it should be remembered that motor phenomena will be more evident than sensory, since the sensory tract lies towards the centre of the cord and is consequently more protected from injury. At first there is slight dragging of the toes in walking, and weakness of the bladder and rectum sphincters, with exaggeration of the reflexes, (the latter sign being an important one from a diagnostic point of view).

Later on the paralysis becomes more complete, secondary contractions and rigidity occur and the reflexes diminish.

However, the course of paraplegia is on the whole favorable, and recovery takes place in the majority of cases.

Diagnosis.—The diagnosis of Potts' disease is always more difficult in the early stage before angular curvature has taken place, and when it might be mistaken for intercostal neuralgia, rheumatism, hysteria or renal disease.

A thorough and complete examination of the patient is of great importance and strongly emphasized by all writers—he should be stripped of his clothing and inspection first carried out, carefully noting whether any special attitude is assumed, whether any rigidity present or deflexion of spine. He should be made to bend backwards and forwards and to both sides and the occurrence of spasm in any of the muscles of the trunk noted. It is well to examine the spine from in front as well as from behind, and pain on pressure over the transverse processes and rigidity of the back are the symptoms on which most stress is laid. Marked tenderness on pressure along the entire length of the spine without the occurrence of muscular spasm or deformity, is a pretty sure indication of the so-called "hysterical" spine, as opposed to tuberculosis.

If muscular spasm be found on any manipulation of the spine, or pain on bending or from pressure on the head, together with referred pains to the anterior part of the body and the patient showing an elevation in temperature of from ½ to 1 degree, the chances are almost certain that you have to deal with an inflammation of the spine, even though no deformity is apparent.

In the later stage of caries and when angular curvature is present, it

may have to be diagnosed from the kyphotic or backward curve of rickets. But in the latter condition we find that the curve will more or less completely disappear on holding the child up by the arms or on extending it face downwards across one's knees. There are, moreover, the associated signs of rickets present, and an absence of these pointing to tubercle. The diagnosis between abscess resulting from spinal caries and that due to any other cause may give some trouble. We may have a psoas abscess descending in the sheath of the muscle and presenting under Poupart's ligament when no disease of the vertebrae exists. In some of these cases of "sample abscess," the diagnosis from abscess dependent upon vertebral disease may be practically impossible, for occasionally the presence of an abscess is the only symptom of spinal disease.

The more important conditions (apart from Potts' disease) in which we may have abscess or swellings simulating that dependent on caries of the spine, are the following:—

(1) Disease of the kidney with accompanying suppuration in the surrounding areolar tissue, producing a perinephritic abscess.

(2) Inflammation of the appendix or cæcum—right side only.

(3) Disease of the iliac bone or a cellulitis in the tissues under the fascia iliaca, producing an iliac abscess.

(4) Hip-joint disease.

(5) An empyema perforating the pleura and passing down behind the diaphragm.

(6) Femoral hernia.

These various conditions are apt to confuse, but with care can be readily diagnosed from the abscess of Potts' disease. If the collection be perinephritic, there will likely have been previous or there are, coexisting signs of renal disease while a spinal lesion may be absent.

The character of the pus in an abscess following appendicitis, or inflammation of the cæcum, is distinctive in its very offensive odor, due to presence of colon bacilli. The previous history in such a case will also differ considerably from that of spinal caries.

An iliac abscess and especially when it finds its way into the sheath of the psoas, may be difficult to diagnose. It can then be only distinguished by its generally being more limited in extent than the iliopsoas abscess and by the absence of symptoms of spinal disease.

Hip-joint disease is readily recognized by the limitation of movements at the hip, presence of pain in the joint, and by the abscess not extending upwards along the course of the psoas muscle.

In those cases when an empyema has found its way down and presented in the groin, an examination of the chest will point out the nature of the affection.

From femoral hernia, a psoas abscess may be distinguished by the fluctuating character of the swelling and which may be felt above and below Poupart's ligament by its being external to or below the femoral vessels and by the absence of any gurgling. Other symptoms of spinal caries will as a rule, also be present.

In conclusion, will cite two interesting cases, one of which was reported in the *British Medical Journal, 1900,* and the other in the *Lancet* of 1881 (bearing on this subject)

W. S., age 18, schoolboy, was admitted to Westminster hospital, London, May 24th, and died June 8th.

He was a pale strumous boy. Parents both dead. Had five healthy brothers alive. He enjoyed good health until two months previous to admission to hospital. He then complained of sore throat and was treated for quinsy. At the same time he had a so-called attack of pleurisy.

Two weeks before admission an abscess swelling came on the left side of his neck, extending for four inches from occipital spine to left ear. Another abscess burst into his pharynx at about the same time, and a probe introduced through the mouth came down on exposed bone. He was able to walk to the hospital when he was at once placed in an absolute recumbent position, and there maintained with head supported by sand bags. Was ordered a generous diet and a tonic of cod liver oil and syrup of iron phosphates. No improvement beyond freedom from pain resulted, and he died June 8th.

The post mortem examination showed the viscera generally to be healthy, but the upper three cervical vertebræ were diseased and distinctly eroded. A large abscess sac enveloped these articulations, spreading forward to the pharynx and latterally and behind towards the left ear.

It was a very typical case of cervical caries with active joint mischief going on, but the only distortion was a stiff neck mistaken for quinsy.

The other case reported by Dr. James Allan in the *Lancet* for June, 1881, shows that pus or abscess formation does not always come to the surface and show itself.

Henry C., age 55, admitted to hospital September 3rd. Four years before, he fell from a considerabe height on his back. For the last two years he has had pain and weakness in the lumbar region. On examination, the last dorsal spines were found to be slightly prominent and there was pain on pressure or movement, with some rigidity of the spine. He frequently complained of pain in the area supplied by the lateral branch of the last dorsal nerve. Was no paralysis or difficulty with bowels or bladder. He died rather suddenly of pneumonia, May 30th.

The post mortem examination showed that the 12th dorsal and 1st lumbar vertebræ were diseased. A large portion of both bodies being broken down and the space so formed occupied by thick pus, which had also burrowed along each side of the spine in the psoas muscles, getting as far as the 3rd lumbar vertebræ. The right lung was in a state of red hepatization and caseous nodules were present in the apices of both lungs.

Hence the importance of an early and correct diagnosis in Potts' disease, since much may be done in the way of checking its course by anticipation, but nothing in the way of cure after delay.

POTT'S DISEASE OR CARIES OF THE SPINE.

BY

R. H. Ellis, B.A., '03.

We do not always judge of the importance of an incident by the frequency with which we are brought into contact with it, and in this connection I have but to mention our dusky Italian friend with his street organ, who seems to grow, as it were, under our very windows when study is the necessity of the hour, or the man on the corner, on whom fortune seems ne'er to smile, save through the coppers which we fling into his cap.

Neither on the other hand, can we draw conclusions as to the importance of an event which but rarely transpires in our midst. The assassination of a President or the crowning of a King will at once occur to our minds to bear out this statement. And yet, among the disorders which afflict mankind, there are diseases which, from their ever recurring frequency and prevalence, no less than from their influence on a people or nation, demand the closest attention and study, which we can give.

You will doubtless remember that some two weeks ago, while attending a clinic to the 3rd and 4th years at the Royal Victoria Hospital, the great subject of tuberculosis in one of its most prevalent forms was brought before us. A week later, the subject was again tuberculosis, and there will doubtless arise in the experience of each one of us many score of cases such as we saw on these two occasions.

To-night we are dealing with the same disease, though in yet another of its manifestations.

One of the most common forms of tuberculous disease, and one especially met with in surgical experience, manifests itself in the changes which bones and joints undergo when invaded by the tubercle baccillus; and while we are speaking, with particular reference to the vertebral column, yet the process in the various bones of the body is very similar.

In mentioning Pott's disease, the mental picture is at once presented of an individual with bent back and great deformity. In fact tuberculosis of the spine and angular curvature are, with the majority, synonomous terms. Though the two are very frequently associated, yet the one does not necessarily imply the other. Were our knowledge sufficiently complete to enable us to make an early diagnosis, the deformity would not be so common. And when we remember that only a moderate length of time is necessary, after the first appearance of rational signs, to bring on a modification, (bulging or flattening

according to the region) of the normal spinal contour, we are the more readily impressed with the importance of this knowledge. But I am encroaching on the territory of another.

Since the great discovery of Koch in 1882, our knowledge of the pathology of the disease has taken a wonderful stride forward. From that year also dates the inauguration of a new surgical treatment. Records of the disease and descriptions of the clinical forms found in joints, go back as far as Hippocrates, but it was to Wiseman in 1676, that we are indebted for our first accurate clinical history. Under the name of "white swelling," (tumor albus) he included a number of chronic joint diseases, which constitute even at the present time, the most frequent form of tuberculous inflammations of the joints, and which we are accustomed to call by the same name. He was also convinced that the disease is materially dependent on scrofula. Other investigations followed and of these R. Brown Chester, in 1766, and Benjamin Bell, in 1779, deserve special mention. In 1844, Bonnet furnished positive anatomical proof that "a large number of so-called white swellings were due to tuberculosis of the synovial membranes."

Since then experimentation on animals has thoroughly demonstrated the tuberculous nature of the so-called "scrofulous bone and joint disease"; and yet it is remarkable that in all cases of experiment (as is also true of the disease in men) the number of bacilli is exceedingly small.

My share in the subject for this evening consists in discussing the etiology and pathology of tuberculosis of the spine.

The causes of tuberculosis of the spine are much the same as those of the affection elsewhere, *viz*:—it affects an individual predisposed to the development of tuberculosis, either by some inherited tendency, or by impairment of the general health, as from some previous illness or exposure to defective sanitary conditions.

In many cases a predisposition to the disease is certainly manifest, and in such individuals the tissues and fluids of the body furnish a more favorable soil for the growth of the bacillus. One set of statistics shows that of 162 cases, 34 per cent. were children of distinctly tuberculous parents and again, records show, that in 250 cases of tuberculous bone disease 97 had parents or grandparents who were tuberculous. This, curiously, is again about 34 per cent.

In regard to the age at which the disease is most frequently met we have very clear evidence. Of 375 cases recorded, 226 were under five years of age when the disease began, while 77 were under two years. In 4 cases the disease could be referred to the first six or

seven months of life. 8 cases occurred after the patient had reached the age of 40, and but one was over 50. This last occurred in the cervical region in a man 72 years of age.

Whether the proneness of early childhood to this disease be the result of the greater softness of the osseous structures at that period I will leave for others to decide.

Sex exerts a not unessential influence on the frequency of the disease. Thus of 412 cases in which the sex was recorded, 235 were males and 177 females, or a ratio of 9 to 7. This bears out Dr. Sayre's assertion "that it occurs more frequently among boys than girls." This preponderance is probably due to a greater exposure to accidents.

In the vast majority of cases, tuberculosis of the joints and bones follows slight contusions or sprains. Pott's disease usually occurs after a fall or sprain and in a susceptible individual. This bruise to the soft spongy tissue of one of the vertebræ is followed by a laceration of the delicate vessels, and a consequent effusion of blood into the cancelli of the bone. The circulation of the part is impaired and nutrition is interfered with. This for a time disables the tissues and so the resistance on their part to bacteria and their poisons is greatly lessened. In an individual predisposed to tuberculosis, the seeds of the disease may be imprisoned in the system, the first manifestations occurring in other structures, notably the lymphatic glands and the lungs. The original focus of disease is, however, frequently small and may remain quiescent while the lesion in the bones advances. The disease of the bones may be due to direct extension through the mucous membranes or to hematogenous infection.

The bacilli are carried by the blood to the injured area and as Krause holds, pass out of the ruptured end of the capillary into the clot, which forms a favorable soil for its growth. The light forms of injury are more frequently followed by tuberculosis than more severe accidents, and so at one time, amputations were very common in France after sprains, while it was very rare to find the disease following fracture.

A study of the comparative frequency of this disease in the several regions of the spinal column brings up a few interesting points with respect to trauma. The results are based on the fact that the apex of spinal projection corresponds very closely with the centre of disintegration, and this conclusion is reached from an inspection of dried specimens and from the post mortem table. Of 300 cases recorded where a diagnosis of the individual vertebræ involved has been made, we find that there were three centres of maximum liability to the disease, one was at the 6-7 cervical vertebræ, one extending from the 8th dorsal vertebræ as a centre a short distance up and down, and a

third at the 1-2 lumbar. The curve represented by these figures is a continuously progressive one, gradually rising to its maximum and descending to its minimum. For, if it were very irregular, rising and sinking very suddenly between adjacent vertebræ, it would suggest the suspicion that the method of diagnosis was too defective to be depended on.

We see from this that certain regions are peculiarly liable to the disease, while others rarely suffer from the tuberculous changes. The question now arises, can we assign any reason why the vertebræ at the extremities should possess a greater immunity than those of the dorsal or dorso-lumbar regions.

Assuming traumatism to be the important exciting factor, we can probably explain this liability from the mechanics of the spinal column. We are all well acquainted with the curves of the various regions and can easily see how the dorsal convexity, corresponding to the 7th, 8th and 9th vertebræ would be the most vulnerable part of the spinal column, either from a blow from behind or from a fall on the back, Moreover, this region suffers from a want of that protection seen in the cervical and lumbar, where the muscles with the occiput above, and the iliac crests below, would save these parts considerably from violence, while the upper dorsal region is protected by the scapulæ and their connected mass of muscle.

With respect to the lower region which is affected about equally with the dorsal, we find two explanations which we may put forth. As we descend the superincumbent mass adds increased weight, and we may say that it would exert considerable pressure, especially in jumping or a fall on the limbs and ischia. Our second reason is found in the fact that between the lowest dorsal and the upper lumbar vertebræ, we have the most enarthroidal joint in the column, which constitutes a great natural hinge between the upper and lower parts of the body. On this point, in almost every form of heavy work as carrying, lifting and in wrenches of all sorts, the strain is felt, and must considerably predispose to its predilection for the entrance of the tubercle bacillus. From the above facts we can readily see how the average liability of the cervical, dorsal and lumbar regions is in the ratio of 1-5 and 5.

In rare instances the transverse and spinous processes may be the seat of the disease.

With these few ideas in regard to the etiology of the subject under discussion, we will turn our attention to its pathology.

The disease begins in bones as tuberculous ostitis, and in the vertebral column the bodies are first attacked. Here, as in other bones, we have the first signs of the disease in that part where we have the greatest growth; that is in the region of the periosteum, or rarely

in the intervertebral substance, the latter when found being usually in children. Thus it is that in many cases it exists as a tuberculous periostitis.

The inflammation here, as in soft parts, is characterized by increased vascularity, the blood vessels in the Haversian canals becoming dilated and thus giving the bone a red and injected appearance. Exudation and escape of leucocytes soon result, and proliferation of connective tissue cells then follows, causing congestion of the interval between the blood vessels and the body wall of the Haversian canal. The earthly salts are loosened from their connection with the animal matter and the bone lamellæ and trabeculæ are softened, eaten into as it were, and absorbed by the pressure of the inflammatory material, which here as elsewhere assumes the form of a lowly-organized small cell-exudation. This is granulation tissue. The bone is eaten out in a crescentic manner, and large cells (osteoclasts) containing many nuclei, are found in immediate contact with the bone. These osteoclasts it is believed (though the process is unknown) take an important part in the absorption of the osseous structure, and we soon have the spaces of the cancellous bone still more widely dilated until the affected portion is completely replaced by granulation tissue. Under appropriate treatment ossification may occur, and recovery may then ensue without deformity of the spine. This favorable termination is especially apt to occur where periosteal proliferations of bone develop in the anterior common ligament and form bridge-shaped spans, which bind the vertebræ firmly together and produce ankylosis of the corresponding portion of the spine. More frequently, however, the inflammatory material undergoes caseation, may break down into pus, with very extensive destruction of bone and the formation of spinal abscesses. Large portions of cancellous tissue may die "en masse" forming cheesy sequestræ, which may keep up the morbid process for years.

Complications frequently arise from these collections of pus, though in some instances they give considerable aid in diagnosis. I have but to mention the cold abscess which later takes the form of the psoas, iliac, retro-pharyngeal and as we heard at our last meeting, subdiaphragmatic abscesses. In some cases the pus burrows into the vertebral canal, thus setting up meningitis, and as a result of pressure, a subsequent paraplegia.

As before mentioned, the most favorable seat for the initial stage of the disease, is just beneath the anterior common ligament on the anterior surface of the bone. At this point absorption is greatest, as the vessels which pass more or less vertically into the vertebral bodies become surrounded by a characteristic mantle of granulations. The spinal column macerated at this stage, exhibits on its anterior

surface, irregularly dilated, vascular openings which when situated close together, form irregular, shallow, plate-shaped defects. The spine looks as if worm-eaten. If the autopsy is made at this time and the anterior common ligament is removed, we find the tubercular granulations on its internal (posterior) surface in the shape of small red nodules, which have been torn out of the bone. The bodies of the vertebræ exhibit the corresponding openings.

The sub-periosteal tuberculous deposit early extends to the adjacent bone, and thence to the neighbouring vertebræ, either along the under surface of the anterior common ligament, or through the intervertebral discs, which are disintegrated by the process. When it spreads along the anterior common ligament the disease may be very extensive, body after body being eroded and the discs suffering even more than the bodies. In such a case the deformity produced is not strictly angular, but rather of a general kyphotic nature. Occasionally the disease starts in many foci simultaneously, so that the bodies of several vertebræ become pitted and carious without producing general destruction. In other cases the process is limited to the bodies and intervertebral discs of two adjacent vertebræ, the periosteum being but little affected. This variety is perhaps most common in the lumbar regions where the bodies are large and permit of limiting zones of sclerosed tissue, by which the further progress of the disease may be arrested. When as in rare instances the centre of the bone is attacked, suppuration is a less frequent result.

By the growth of granulation tissue the bodies of the vertebræ are rendered incapable of sustaining the accustomed pressure. They are also much weakened by the rarefying ostitis which often precedes the spread of the tubercular infection. The formation of the prevertebral abscesses aid in the destruction. Finally, partly through the pressure above and partly by the dragging of the abdominal muscles, acting mainly on the anterior border, the upper portion of the spine thus undermined, according to the laws of construction of arches, falls forward forming an angle with the lower portion at the seat of the disease.

When the disease and deformity occur in the dorsal region, the normal lumbar and cervical curves will be increased owing to the patient's efforts to maintain the upright position. The angular projection is thus thrown backward and the well-known humpback is produced.

When the disease occurs in the lower lumbar region, there is no means of restoring the balance, and the patient is compelled to stand or walk with the body inclining forward, and in severe cases nearly at right angles to the pelvis.

With a brief consideration of the methods adopted by nature to

produce fixidity and rigidity of the diseased spine during life, we have done. This is brought about through the combination of three processes, *viz*:—

(*a*) Loss of elastic discs.

(*b*) Ankylosis.

(*c*) Reflex spastic contractions of the spinal muscles.

In regard to the first, we are dealing with a substance lacking vessels, its nutrition being effected in great part by the vessels of the bone, and which cannot, therefore, undergo the vascular and granulative changes seen in inflammation. It is eroded by the proliferating granulations from the surrounding structures and gradually gives place to tissue of a non-elastic character. Or this same result may be brought about by another process. The cartilage in many cases is bathed on all sides by a more or less pus-like fluid. Thus acted on, it begins to soften or degenerate, its consistence diminishes, its elasticity, which is of such physiological importance, is lost more and more, until the intervertebral substance is destroyed. New bony formations now spring up and we come to our second factor—ankylosis.

This is a result of the granulation tissue springing from the bony surfaces on either side. The two layers of granulation tissue unite, and after, as a rule, passing through the fibrous stage undergo ossification. This leaves the patient with a stiff joint.

But the third factor cannot be overlooked, though it also plays an important part in producing the deformity. Great influence attaches to the reflex contractures of the muscles, resulting from irritation about the joint, and the development of these contractures is especially favored by the position the patient voluntarily assumes. These pure-contractures soon pass into complete fixation, through changes in the muscles and connective tissue.

In the muscles the changes in this stage (nutritive changes) depend upon certain degenerations and upon absorption of their contractile substance. As a result of disuse, fatty metamorphosis occurs, and the contractile substance is finally destroyed. The inflammation conveyed from the diseased area also influences the atrophic processes, the normal elasticity of the muscles is lost and they are converted into unyielding bands. They often assume a tendinous structure, and the contracture becomes retraction. The shortened muscles then yield only to great violence or not at all.

And now like our ministerial friend of the Wesleyan College, I have finished my "lastly" and will give place to the rest of the programme, trusting that after this evening, the majority of you will cry, (in regard to Pott's disease as I erstwhile would have done) with the poor man of Scripture, that "Whereas once I was blind, now I see."

COMPLICATIONS OF GONORRHŒA.

BY

S C. NORRIS, '03.

Before the discovery of the gonococcus by Neisser in 1879, and its successful cultivation 9 years later by Bumm, very little was known about the complicating conditions of gonorrhœa. A few of the more common ones, such as the rheumatic and cardiac were referred to as "associated conditions," but the intimate relation between the two was only surmised. Since then, with improved methods of staining and cultivation, the specific organism has been demonstrated in many organs of the body as the existing cause of these not unusual complications, but all has not yet been learned and there still remains much room for research work.

The term gonorrhœa, in a strict sense, means a specific anterior urethritis and any variation or extension from this will be considered as a complication. These may arise anywhere in the course of the disease and do not seem to have much relationship to the severity of the attack, but to some extent on the treatment employed and general condition of the system, they are possibilities even in the mildest attack, but when once established are difficult to deal with and get rid of.

Konig states that once the organisms have gained access to the system, they may be found in every tissue in the body, this has so far not been entirely proven and until this has been accomplished, we can only theorise as to the causation of some of the conditions. As yet, there have been very few cases where the gonococci have been demonstrated in the nervous system and the associated nervous conditions are supposed to be due to the action of the gonotoxine. This theory will probably be overthrown in a few years and the gonococci shown to be the exciting cause, though probably the toxine also has something to do with the ultimate result. That the toxine is capable of producing inflammation, is probably proved by the iritis produced in the systemic infection.

No doubt some of the complications are due to a mixed infection, but pure cultures of gonococci have been obtained in sufficient cases to prove that it can produce most of the diseased conditions without the association of any other organism.

The question of the mode of entrance into the blood stream naturally arises. In the first stage of the inflammation, the gonococci are superficial, but later they are found in the deeper structures, where they

are taken up by the white cells and carried to the lymph channels and thus get into the blood current.

We will consider the complications under the following headings:—

(1) Local.

(2) Those due to direct transmission.

(3) Those due to direct extension.

(4) Systemic infections.

(1) Local:—

When the infecting agent gets into the deeper layers and follicles, folliculitis results and when the openings are blocked we get perifolliculitis. This may point internally or externally, if the latter, it is not often followed by a fistula, though sometimes this may occur. Stricture is one of the later effects and generally does not appear before the end of the first year, after an acute attack, most frequently situated in the bulbo membranous portion or anterior $2\frac{1}{2}$ inches.

The development of a stricture depends on the thickening and induration of the wall, due to the continuance or frequent recurrence of the discharge. The painful condition chordee, is due to involvement of the spongy portion and blockage of the lymph spaces.

(2) Those due to direct transmission:—

Gonorrhœal proctitis is said to be rare. It is generally due to an unnatural gratification of the sexual impulse, or to the discharge escaping from the infected vulva and infecting the parts about the anus, especially in patients with hæmorrhoids or prolapse of the rectum, where the parts are brought into direct contact with the infecting material. It gives rise to few symptoms, except when excoriations and fissures are present, when pain and tenesmus develop. Fistulæ and ischiorectal abscess may occur.

Dr. Barr says, that in 191 cases examined, 67, or 35 per cent. had gonorrhœa of rectum established by microscopical examination. Conjunctivitis occurs from infection by fingers or towels, sponges, etc. It generally runs a very severe course and unless very carefully treated, may result in ulcerative keratitis, which may perforate and involve the iris. Anterior synechia, staphyloma and other sequelæ may result and serious damage is common. Ophthalmia neonatorum is one of the most terrible results of gonorrhœa.

In an address on opthalmology to the Indian Congress in '94, Dr. Mackenzie stated that in Bengal alone there were blind beggars, 40 per cent. of whom had lost their sight through this affection, and according to Fuchs, there are 30,000 persons in the blind asylums of Europe from this cause. Infection occurs in the genital canal during birth or after birth by infected towels or sponges. It is generally

more acute and runs a more rapid course with more serious consequences than the conjunctivitis of the adult.

A few cases of acute rhinitis with profuse discharge have been recorded, but the condition is very rare.

(3) Those due to direct extension:—

When from want of cleanliness the mucous membrane of the glans becomes involved, we have the condition of balanitis, which may go on to vesicle formation and ulceration, and in healing leave a scar not unlike that of a chancre. Further invasion of the mucous membrane on inner side of prepuce giving us balanoposthitis, usually causes phimosis and if retracted over the glans, para-phimosis.

When the glans is involved, we generally get a lymphangitis along the dorsum of the penis, which may extend and involve the glands in the groin, which enlarge, but rarely suppurate.

In the urethra, extension backwards may be aided by passing instruments, or by improper or incomplete irrigation and the posterior urethritis thus set up, is in itself a complication and one which gives a great deal of trouble in the treatment.

From the urethra the ducts and glands of Cowper may become infected, giving on account of their anatomical position a very painful condition.

Next in line of involvement comes the prostate and here we have what seems to be the latest seat of the disease. In the recurring form of gonorrhœa the discharge can be seen oozing from the prostatic ducts, some claim that gonococci cannot be found in this and that it is a secondary infection, but there does not seem to be any reason why gonococci cannot remain latent in the prostate and when the vitality of the mucous membrane is lowered take on increased virulence. The prostatis may end in abscess formation from the joining of several follicles and this may point in any direction, leading to periprostatic abscess, fistulæ and cellulitis, or if the condition is more chronic fibrosis may result and cause more or less trouble. A small portion of the neck of the bladder is commonly found involved with the prostate (prostato-cystitis).

From the prostate the infection may spread in two directions:—

1st. Through ejaculatory ducts.

2nd. Invasion of the bladder.

The question of invasion of the ducts is debated, according to Baum-Gorten's experiment the infection does not pass backwards along the ducts, but reaches the epididymus by the lymphatics or vessels.

The seminal vesicles, however, frequently become involved. Some claim that this is common and frequently mistaken for prostatitis.

Epididymitis, one of the most frequent complications occurs generally in those cases improperly treated or not treated at all, but is also determined by violent exertion, trauma or venereal excess. It may occur on both sides, but the left seems to be most frequently affected, some say because of its position causing a tendency to local congestion. Whether sterility follows a double epididymitis or not is as yet undecided, cases have been reported on both sides. Some cases of epididymus orchitis are followed by atrophy of the testicle. With the epididymitis a hydrocele sometimes occurs from direct infection or pressure. Invasion of the bladder is generally said to be the result of a mixed infection, but pure gonococcal cystitis has been demonstrated. Young says that albuminous urine is necessary for its development. From the bladder the infection may spread to the kidney by three routes:—

1st. Ureters.

2nd. Lymphatics.

3rd. Blood vessels.

If with a cystitis, we have some obstruction to the outflow of urine as prostatitis or stricture, then we have the two etiological factors necessary to produce changes in the ureters and kidneys, *viz.*, pyelitis, pyonephrosis and pyelonephritis. Morris says, pyelonephritis when secondary to disease of the bladder is too often unrecognized and Stimson says it may exist for months without giving rise to any symptoms that attract attention. Some cases have been reported without any previous cystitis, the infection extending from the urethra under the mucous membrane of the bladder by the lymphatics.

(4). Systemic infection:—

We cannot say that gonorrhœa is distinctly a local disease, because of the numerous and varied conditions produced from the general infection of the system in so many cases. The cause for this may be in the infection itself, or in the system of the individual, but no doubt are greatly aided by harsh measures towards the local condition. Ward says that constitutional symptoms may be produced by the absorption of the gonotoxin, and considering some of the effects this may be the case, but the gonococci also reach and circulate in the blood stream and have been obtained in pure culture from it during life in several cases.

Several fatal cases of septicæmia have been reported, in which no lesions could be found in any organs and no other cause could be found for the condition. The post mortems were incomplete in most of the cases. The general opinion seems to be that the nervous conditions associated with gonorrhœa are due to the action of the gonotoxin. Stimon reports a case of meningitis, in which gonococci were

found and Furbinger, both by lumbar punctures and post mortem examination found diplococci corresponding in all details to Neisser's gonococcus.

Gowers, Leyden and several others have published cases of myelitis, apparently closely associated with gonorrhœa.

Engel-Reimers has reported cases of polyneuritis and Fournier has described gonorrhœal sciatica.

Tambourer has reported a case of double hemiplegia following phlebitis in the course of a gonorrhœa and Pitres also mentions two similar cases.

Dr. Bruns reported a case of right sided hemiplegia with motor aphasia in a young woman suffering from gonorrhœal parametritis, salpingitis and peri-oöphoritis.

Gonorrhœal iritis is probably due to the action of the gono-toxin, it generally occurs in the later stages of the disease and in connection with gonorrhœal rheumatism, but may be present alone as the only evidence of the attack.

In respiratory system.

In '94, Mazza obtained gonococci in pure culture from a pleuritic effusion and now pleurisy is generally recognized as one of the complications.

Bordone-Uffrediezzi reports a case of a young girl assaulted by an individual with gonorrhœa with the development in a few days of a polyarthritis and later a double pleurisy and also symptoms of endo and pericarditis, examination of pleural exudate showed organisms not to be distinguished from gonococci and confirmed afterwards by cultures.

Pneumonia has also been mentioned, but as yet no definite proof has been obtained.

In the circulatory system the complications have been well established and are now generally accepted.

Gonococci have been found in the heart in many pure cultures by many French observers and in the last few years by Thayer and Blumer. They demonstrated the gonococci in the blood during life and on the heart valves, post mortem. Since then Leuhartz innoculated a previously healthy urethra with vegetations from aortic valve and set up a purulent discharge. Thayer and Lazrar in reporting a later case concluded among other things:—

(*a*) Endocarditis may be transient with few apparent results, chronic, or rapidly fatal with symptoms of acute ulcerative endocarditis.

(*b*) It is commonly due to direct action of the gonococcus, but may be the result of a mixed infection.

In the cases thus far reported the left heart has been most affected, and aortic valve more than the mitral, though any of them may be involved. Pericarditis is rare, though some cases have been reported.

Myocardial changes, such as necroses, embolism and abscesses are common in gonorrhœal septicæmia, though they are generally secondary to endocarditis.

Councilman reports one case in which myocardial abscesses existed without endocarditis.

No marked changes in the arterial system have so far been described, but slight alterations and thromboses in retinal veins have been ascribed to gonorrhœa in men free from syphilis, or other probable causes for vascular disease. Many cases of phlebitis in lower extremities have been reported.

The most frequent complications are no doubt the rheumatic, which may occur at most any stage, but ordinarily after the 3rd week, when the discharge is subacute and also may follow ophthalmia neonatorum.

It may manifest itself in any of these ways:—

1. Arthralgia.
2. Synovitis.
3. Arthritis.

In the first, we have simply temporary fugitive pains in or about the joints with no signs of inflammation.

When the synovial membrane is attacked, the effusion is intra-articular and resembles that of a traumatic synovitis.

In the arthritis the periarticular structures chiefly are involved, with serous or sero-purulent effusion in the tendon sheath, producing much swelling and redness, the ligaments are softened and displacement may occur.

Suppuration may take place, with extensive destruction of all tissues involved, Osler calls this the most destructive and disabling of all complications of gonorrhœa. It may be mono or poly articular, in one series three or more joints were involved more than 175 times and one joint only 56 times.

In Dr. Stewart's series, the knees were most often involved, then the ankles, small joints of feet, wrists and small joints of hand.

Endocarditis is not very often associated with the rheumatic condition.

Perichondritis, especially of the costal cartilages is not uncommon and inflammation of the tendons especially tendo achilles is often seen. Flat foot is commonly produced by softening and relaxation of the ligamentous structures in the sole.

Abscesses about the tarsus and peroneal tendons have been reported by Almtoist.

Professor Eichorst reported a case of myositis with a swollen area $3\frac{1}{4}$ x $3\frac{1}{2}$ inches. There was no temperature and the condition was present for months. He said that in every case so far observed, the femoral region was involved and that the swelling was due to the gonococcus and not the streptococcus.

We find many cases of cutaneous lesions reported generally in septicæmic conditions, but whether due to gonococcus or its toxine is yet to be proven. Thayer and Lazrier report petechiæ present in one case with ulcerative endocarditis.

A case of purpura of lower limbs afterwards developed into a general condition with myalgia and arthralgia, in which examination showed the presence of the coccus and staphylococcus alba. In another case the skin lesion appeared as a painful red indurated blotch, with a round crater-like ulceration in the centre with sharply defined edges and penetrating the entire thickness of the skin with a sanious discharge. These craters varied in size and numbered 15 in all. On excising a suppurating right testicle, cutting a stricture and treating an infected focus behind this, improvement began at once in the arthralgia and skin lesions.

Phillips in '99, reported a case of chronic gonorrhœa, with an acute exacerbation, purpura rheumatica, macular lesions, irregular and circular in outline, varying in size, deep bluish red in color, not fading on pressure and situated over anterior and inner aspect of the legs and thighs and also over left ankle and wrist. About 12 days later purpura urticous appeared on the lower extremities, bright red in color, not changing on pressure, no itching and normal temperature. There was no previous history of rheumatism, but along with the preceding symptoms several joints were swollen and painful.

Cases of parotitis have been reported, one in which a right-sided adenitis was followed by an orchitis and suppurative parotitis of same side in quick succession. In explanation, the reporter stated that since parotitis often follows a primary lesion in the abdomen or pelvis without any symptoms of pyæmia, and the testicles being in origin and connections an abdominal organ, should be considered under the head of abdominal and pelvic lesions.

The consideration of this subject would not be complete without special reference to the disease and its dire consequences in women. Infection commonly takes place in the urethra, as the pavement epithelium and presence of lactic acid bacteria give the vagina a relative immunity. If the cervix is infected either directly or secondarily to the urethra, we are apt to get a rapid spreading through the whole genital tract, vulvitis, vaginitis, endocervicitis, endometritis,

salpingitis and generally a localized peritonitis and peri-oöphoritis. Several cases have been reported of acute diffuse peritonitis and pure cultures of the coccus obtained, but I was not able to find any record of a pure gonococcal peritonitis in the male.

The result in women of chronic gonorrhœa only too often is invalidism and sterility. In the more acute cases it is also either directly or indirectly a factor in puerperal sepsis and accountable for a larger percentage of complications and fatalties than is generally supposed.

In conclusion allow me to read the opinions of a few gynæcologists on the subject:—

Montgomery says,—in women, gonorrhœa is much more dangerous than syphilis, for when infection once occurs, the entire genito-urinary tract may become involved and the individual subsequently suffers from chronic inflammation of the uterus, suppuration of the tubes, inflammation of peritoneum and ovaries as well as cystitis, ureteritis, and all the affections of the kidneys. She not only loses her power of reproduction, but develops inflammatory conditions, which, if they do not cause a fatal termination, produce such destructive changes in the pelvic organs as to necessitate their removal in order to prolong life or render it endurable.

Dr. Holmes.—There is no disease that affects women, that should engage the serious and thoughtful consideration of the physician more than gonorrhœa, that deadliest of all enemies to female health.

Sir Lawson Tait.—In early life I heard an eminent surgeon say that if he were doomed to have venereal disease, he would rather have syphilis than gonorrhœa. I marvelled and disbelieved, but now I know that if he included women in his thoughts, he spoke truly.

Where syphilis kills tens, gonorrhœa kills thousands and it would take the sufferings of one hundred cases of syphilis to make up for the long weary years of agony in one case of gonorrhœal pyosalpinx.

VALSALVA.

BY

S. O. McMURTRY.

The Italian anatomist, physician and surgeon, Antonio Marie Valsalva, was born at Imola, 1666, and died at Bologna, 1723. Born of a noble family he received a liberal instruction in classical and in polite literature.

As a boy, he, as the French say "turned a curious eye" to the structure of the bodies of birds and other small animals, and as soon as his school days were over entered into the study of anatomy at the University of Bologna, a city near to his birth place of some 50,000 inhabitants. Anatomy in his day was on a fairly firm footing, owing to the splendid results of the labours of Fallopius, Vesalius and others, one hundred years before. But not satisfied with book knowledge of the subject, and wishing to see with his own eyes all that was most hidden in the human body, Valsalva dissected many subjects. Led by his teacher, the earnest Malpighi, he rose to such proficiency that in ten years after graduating, when Malpighi stepped down from office, he was appointed in his place as Professor of Anatomy in the University. This post he filled with great satisfaction, and during his office a host of clever doctors were graduated, including the great Morgagni.

Medicine and surgery claimed his attention, for he applied himself to every aspect of his chosen profession. Appointed in charge of the Hospital for Incurables, he showed enterprise by reviving the practice of ligaturing vessels which, in spite of its advantages, had given place to cauterizing. He treated with remarkable success diseases of the ear and simplified several surgical instruments. In his day surgery had been given a stimulating inpulse by the increased knowledge of anatomy and also by discoveries attending upon the treatment of gun-shot wounds following the invention of gunpowder. Histology was in its infancy, owing to the but recent invention of the magnifying glass and of the microscope. Valsalva applied himself with great vigour to the study of the ear, its minutest muscles and nerves. His fame spread beyond his native country, the Royal Society of London admitted himself and his teacher Malpighi as members of their order.

A work by Morgagni has done most to preserve the memory of Valsalva. This is a commentary and criticism of the "Works of A. M. Valsalva on Dissertations on Anatomy and Descriptions of the Structure, Function and Diseases of the Human Ear." He tells us of Valsalva's description of the chief ligaments of the colon, of the sinuses of the aorta, of the muscles of the eye, etc., of his work on the ear, that he had devoted over sixteen years to its study, dissecting over one thousand heads.

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ON THE PART PLAYED BY HEREDITY, AND UPON THE EXTENT TO WHICH MORBID CONDITIONS ARE INHERITED.*

A DISCUSSION UPON HEREDITY IN RELATION TO LIFE INSURANCE.

BY

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Mr. President and Gentlemen,—When asked by you to give a short address upon some medical subject, I confess that I felt considerably in doubt as to what possibly I could give that would appeal to you. You are practical men, and what you would desire would be something having a more or less direct bearing upon your subject of Insurance. I, on the other hand, am not in practice. My subject is the science of medicine, and not the application thereof, and my life work, while not abstract, is, nevertheless, more in the direction of seeking out the causes of disease and the broad principles at the bottom of morbid processes. Thus, you will understand my difficulty in choosing something which I might fruitfully and appropriately talk to you about.

Yet, on further thought, there is a subject which I have been studying to no little extent during the last year or two, which also, I know, interests you. I refer to the subject of Heredity, and in its influence upon the individual, and if, taking up this subject this evening, I may not be able to give you a series of practical hints, at least I may put before you what heredity really is, what is the extent to which disease can be inherited, and may thus to some extent indicate to you the lines along which you, as insurance men, can best proceed to judge the

* Read before the Insurance Institute of Montreal.

weight that should be given to evidences of inheritance of one or other condition in estimating the probable duration of life of the individual.

It seems to me all the more necessary at the present time to bring these matters before you when educated men in general are discussing this subject of inheritance, and when, owing largely to the teaching of Weismann, the popular opinion is that after all, inheritance plays a very small part in development of disease, and more especially when Weismann's teaching concerning the non-inheritance of characters acquired by the individual has been, as I firmly believe, extensively misapplied, so that there is at the present moment a state of very general uncertainty as to whether we are right in taking parental disease into account in estimating the probable duration of life of the offspring.

To note one example, what is to be our position with regard to tuberculosis? We are told that this disease is very, very rarely inherited. Nay, I would go further and say that tuberculosis as such is never truly inherited. But is this to lead us to assume that, therefore, because there is no direct inheritance, the child of tuberculous parents is to be treated identically the same as the child of a family in which there is no tuberculous history? All these are matters which, it seems to me, directly interest you, and I shall feel satisfied if to-night, in the short time at my disposal, I may be able to give you a certain amount of information which may lead you to comprehend these matters and their bearing.

In the first place, it is necessary to have a clear understanding of what inheritance really is, and this because even among medical men and in medical writings, not to speak of the laity, there are the vaguest ideas upon this matter. We have to recognize that it is wrong to consider that everything is inherited which is the property of the child at the moment of birth. There are, in fact, two very distinct conditions to be recognized, as I can best explain to you by a brief reference to the development of the individual. The whole body of each individual is, I need scarcely tell you, composed of a collection of cells, and these cells have different structures and different functions, according to the organs of which they form a part. For example, a bone cell has a very different appearance from a liver cell or a nerve cell, although each of these has certain properties in common with all other cells, namely, it possesses a central body or a nucleus, which is the controlling portion of the cell, and this lies in and controls the surrounding cell substance. One special set of these cells thus forms an essential constituent of the male and female reproductive glands, namely, of the ovaries and the testes respectively.

Each individual is the product of the union of what we may speak of as two organisms—of two germ cells derived from these reproductive glands, one discharged from the father and the other from the mother. The essential fact of the process of reproduction is the passage of a male reproductive cell, or spermatozoon, into the female reproductive cell, or ovum, a passage which is characterized by a very remarkable fusion of the nuclear material of the one with the nuclear material of the other, so that there results a single cell with a single nucleus. The life of the individual—nay, the individual himself—begins the moment that this process is complete, and once thus the individual existence has its origin, the cell proceeds to divide and redivide, and, in man, gaining nourishment from the maternal tissues, this new individual passes the first part of his existence in the uterus, growing rapidly.

It will be seen from this brief account that everything that is brought to this developing individual, embryo or foetus, anything which is absorbed from the maternal blood, is not really *inherited*—it is *acquired* by the individual after the individual has begun its existence. Only that is truly inherited which is a property of the conjugating ovum and spermatozoon, or which is developed during this act of conjugation, or conception, by the interaction of the one cell upon the other. Everything affecting the individual after this moment which is not conveyed from the original conjugating cells, is acquired, so that we have to distinguish clearly between truly inherited conditions and conditions which are acquired either during the uterine existence of the individual or by the individual after birth. Thus we can divide diseases into (1) inherited, (2) those of intrauterine acquirement (these we term congenital), and (3) those of post-natal acquirement.

Once we make this distinction we limit materially our subject. If, for instance, a child is born with the lesions or disturbances of active tuberculosis or syphilis, it is not right to speak of that as inherited syphilis or inherited tuberculosis until we are quite sure that the disease actually affected either the ovum or the spermatozoon, which conjugated to form the individual.

Now, as a matter of fact, every consideration points to the conclusion that this cannot be. Both these diseases I have mentioned are obviously of microbic causation—and we cannot imagine the microbes passing into, and being present in these minute cells without setting up so much disturbance that they destroy those cells and render conjugation impossible. And even if they were there, they would not be actual properties of the material of the germ cells; they would be accidental inclusions which, in an inert condition, had not acted on the

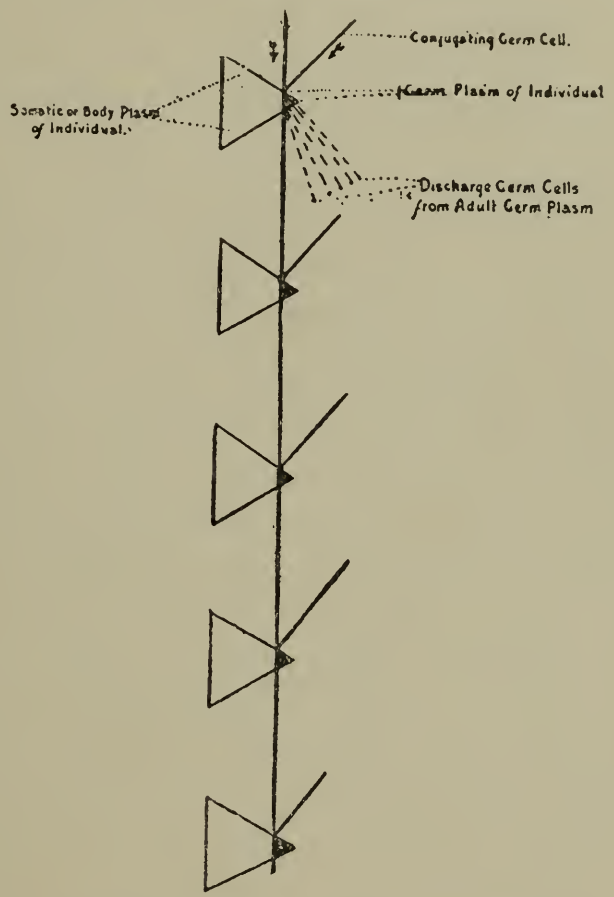
cells, but only come to act upon the embryo during the course of its development. There is, therefore, no such thing as inherited tuberculosis or inherited syphilis. At most there is congenital syphilis and congenital tuberculosis, the microbes of the disease being passed to and acting upon the foetus during intrauterine existence.

But now, do these considerations render it impossible that there should be anything of the nature of inherited disease? What I wish to demonstrate to you to-night is that they do not.

We may regard the developing individual as composed of two portions—the main body and the germ cells—and for purposes of inheritance the main body is the husk or envelope which protects these germ cells, so that, to quote the words of Sir Michael Foster:—"When the animal kingdom is surveyed from a broad standpoint, it becomes obvious that the ovum or its co-relative, the spermatozoon, is the goal of an individual existence; that life is a cycle, beginning in the ovum and coming round to an ovum again. The greater part of the actions which, looking from a near point of view at the higher animals alone, we are apt to consider as eminently the purposes for which animals come into existence, when viewed from the distant outlook whence the whole living world is surveyed, fade away into the likeness of a mere byplay of ovum-bearing organisms. The animal body is in reality a vehicle for ova; and after the life of the parent has become potentially renewed in the offspring, the body remains as a cast-off envelope, whose future is but to die."

Thus, graphically, we may represent the body according to the following diagram. The fertilized ovum produces the whole individual organism, giving rise to germ cells and body cells. An individual germ cell when fertilised gives rise to another organism composed of germ cells and body cells, and so there has been a continuous line of germinal protoplasm, which, dividing and dividing, has nevertheless come to us from the beginning of things, or, as Weismann has put it, the germinal plasm is potentially eternal, the somatic plasm inevitably dies. Now, if an individual has his arm cut off, that does not influence his germ cells, or, at least, can only influence them to this extent, that possibly the individual being minus an arm has not the means of being quite so well nourished as other individuals, and so, the general nourishment of the body being poor, the germ cells may suffer alike with the other cells of the body. But by no conceivable means can we recognize that this largely independent germ cell, consisting largely of undifferentiated material, can be so acted upon by the loss of the arm of the parent that when it develops after fertilisation it shall show a similar loss of an arm. So also, we cannot imagine how, to use a

frequently-quoted example, if the parent has been a dancing master, and has developed the calves of his legs and the excitability of the nerve cells which control those leg muscles, until those legs dance in a way far superior to that in which ordinary people's legs dance—we cannot imagine, I say, that these acquired properties of the parents can pass to the offspring. As a matter of fact, we know that neither of these events happen—the man who has lost his arm has perfectly normal children, the dancing master's children do not naturally dance better than those of other people. A large number of acquired conditions are thus incapable of being inherited.


Conjugating Germ Cell.
Germ Plasm of Individual
Somatic or Body Plasm of Individual.
Discharge Germ Cells from Adult Germ Plasm

This, however, does not include every possibility in the matter of inheritance. We have so far struck out direct infection, acquired gross lesions of organs and acquirement of excessive development of one or other organ, but this does not exhaust the list of conditions telling upon the parental organism. There is yet another class of cases in which disturbances of the body tissues (as distinct from the germ cells) must affect these germ cells, and, influencing them, may, to a greater or less extent, influence the individuals developing from them. Although the germ cells are recognisable at the time of birth, and ap-

parently reach their full structural development early in life (this is more particularly true of the ovum) this does not mean that they remain absolutely inert for long years. For continued existence they, like all the other cells of the body, need nourishment, and that nourishment they, like the other cells, must obtain from the circulating blood Hence diffusible substances circulating in the blood, or present in the lymph which bathes these cells, may pass into and be absorbed by the germ cells as by other body cells, and so it follows that disturbances of a chemical order affecting the tissues in general may also affect the germ cells.

Now we have positive evidence that this is the case. It may be familiar to you that workers in lead, and more especially in some of the more soluble salts of lead, painters using white lead, workers in potteries, more especially those having to deal with the glazing of porcelain and earthenware, are peculiarly liable to suffer from what is known as lead colic, lead palsy, saturnine poisoning or plumbism, the salts of lead absorbed into the system acting especially on the nervous system and certain of the glandular organs. So serious is the condition that, as you will have observed, for now several years past there has been a serious agitation about this matter in the English "Potteries." For long years also it has been observed that there is a terrible mortality among the children of such workers—where these are not still-born they tend to be puny and poorly developed, and when they do not easily succumb to one or other childish ailment they are liable to show nervous disturbances and various forms of mental instability and derangement. When it is the mother who suffers from plumbism, it is difficult to make sure of the exact cause of this weakness of the children. It may be urged that the lead salts absorbed by the maternal organism have diffused through the placenta during uterine life, and so, entering the foetal circulation, have poisoned the offspring and led to its premature death or imperfect development.

A study of cases in which the father alone has suffered from lead poisoning shows that this is far from being everything. Constantin Paul investigated a series of such cases, and his results are very remarkable.

Studying the history of 32 pregnancies in which the father suffered from lead poisoning (the mother was free from that condition), he obtained the following statistics:—

12 resulted in the death of the infants before term,
20 children born alive, and of these
8 died during the first year,

4 during the second year,
5 during the third year,
1 died later in childhood.
2 alone found to be alive—one aged 20 years, the other only 21 months.

The only conclusion from these observations is that certain substances which lead to intoxication of the parental system act also deleteriously upon the germ cells, lower the vitality of the same, so that the individual resulting from the conjugation of one of these with a germ cell of the other healthy parent is incapable of perfect development, is of lowered vitality, and is liable to die prematurely.

This individual himself is in one respect the direct victim of the intoxication—inherited plumbism is lead poisoning acting initially upon one or both of the conjugating germ cells—but it must be clearly recognized that the mental and other disturbances which show themselves after birth are not the result of the action of lead salts still circulating in the system. Indeed, the lesions of inherited plumbism are of a totally different order to those of acquired plumbism; they are one and all lesions of incomplete development, and, if they show themselves particularly as conditions of imperfect organisation of the nervous system or of susceptibility to one or other infectious disease, that is in accordance with the great law of which we are constantly meeting evidences—the law, namely, that the characters which are the last to be acquired by the individual, the race, or the species are those which are the first to be lost. Thus in the evolution of man one of the last acquirements—the crowning acquirement whereby a man is distinguished from all other animals—has been that of the higher organisation of the nervous system. Another has been the development of relative insusceptibility to sundry infectious diseases. And the individual whose full development is arrested is thus particularly liable to manifest a greater or less degree of mental instability, the development of the higher nervous centres being incomplete, or a peculiar susceptibility to the infections liable to attack human beings.

I do not know of any equally exact series of figures bearing upon the influence of chronic alcoholic intoxication on the part of the father upon the offspring. I would suggest that a research among the magnificient material accumulated by the great insurance companies of this continent might lead to valuable results. Certainly we have indications that parental alcoholism has a deleterious effect, and that not necessarily in the direction of the offspring being especially prone to alcoholism, but in that of imperfect development, more especially

of the higher nervous centres. If in certain cases the children are found specially liable to be drunkards, or, as would seem not infrequently to be the case, are affected by amounts of alcohol which are without effect upon those of sound parentage and constitution, this, I would point out, is not direct proof of a direct alcoholic inheritance, of inheritance of a craving for strong drink—it is explicable as an indirect result of parental alcoholism—as due to deterioration of the germ cell—to imperfect development of the higher nervous system—as a result of mental instability, in consequence of which the offspring has inadequate self-control, succumbs to alcoholism just as he is liable to succumb to other vicious habits, and from the unstable condition of his nerve cells those are more easily thrown out of gear by alcohol as by other toxic substances. For the time being, that is, in the absence of positive proof, I am willing to concede the non-inheritance of specific alcoholic tendencies.

Continuing this train of thought, we recognise that, while tuberculosis and syphilis as such are not inherited, even where not congenitally acquired by the offspring, the parental disease may have definite effects upon that offspring. If the study of bacteriology has accomplished nothing else, it has shown us this, that the symptoms of infectious disease are not due to the mere presence of microbes in the system, but to the action of the toxines or toxic substances developed by the bacteria in the course of their growth within the organism, and, that so, infection is but one form of intoxication.

If, therefore, one or other parent, at the time of conception and preceding this, suffers from an infectious disease in active progress, the circulating toxines are liable to influence deleteriously the offspring. Thus, while denying the direct inheritance of infectious disease, we have to recognise what may be termed "indirect inheritance." where, for example, the father suffers from syphilis and the mother is free from the disease, the frequent abortions and miscarriages are not necessarily an indication that the fœtus is directly infected, but, judging from the absence in many cases of clear indications of syphilitic lesions, either in the placenta or the dead fœtus, death has been due to the deleterious effects of the syphilitic virus upon the spermatozoon.

This leads us to another series of considerations. We seem to see—I put it guardedly—that the offspring of syphilitic parentage has a tendency to show a series of disturbances and imperfect developments differing from those of the offspring of tuberculous parentage, and we refer to these as "parasyphilitic" and "paratubercular" lesions respectively. The syphilitic progeny is mentally dull and of delayed development, the teeth tend to be notched, and so on; the

progeny of tuberculous parents, on the contrary, is often precocious in development and mentally peculiarly bright and alert, of good, suspiciously good, complexion, but with poorly-developed chest. Not to discuss the other conditions, it would seem that the parasyphilitic mental condition is one of dulling of the nerves, the paratubercular, that grade of mental instability which renders the higher centres more easily stimulated. It is very generally held also that the children of tubercular parentage are more prone to subsequent infection by tuberculosis. The most brilliant man it has been my fortune to know was himself the son of a tuberculous mother, and succumbed to tuberculosis in middle age.

Is it, therefore, that different poisons act differently upon the germ cells, and that thus different parental intoxications lead to the inheritance of different orders of disturbances? Time forbids that I should enter into the full discussion of this subject, for it is most complex, and, for a full comprehension, requires a discussion and analysis of the various theories of inheritance. Those who hold Weismann's theory, with its complicated series of imagined "ids," "idants," and the like, deny its possibility. As I pointed out in 1901 in an address which I gave before the Brooklyn Medical Club,* that theory is of proved incompetency; it cannot stand. The ultimate theory of inheritance must not be morphological but chemical or physical in its terms. We must regard the idioplasm, or controlling living matter of the germ and body cells as a chemical substance, which grows by taking up non-living matter and converting it into matter like unto itself, and possessing like properties. In thus taking up other matters, it must be subject to continual modification. If we accept this as the basal conception and the foundation of our theory, then it becomes possible to recognise that this or that substance absorbed into the cells may permanently modify the constitution of their most complex idioplasm, and, that so, the idioplasm of the germ cell, modified in one or other direction by the action of a definite toxic substance upon it, when it fuses with the idioplasm of the conjugating germ cell, may modify the growth and properties of the resulting individual in one or other direction.

More than this time forbids me to say. I can but ask you to accept as possible that infectious diseases in the parent influence the offspring in one or other direction, and to accept as my belief that parental tuberculosis, for example, has a definite specific influence upon the offspring. These same considerations, however, lead to further complications. If the germ cells are acted upon by toxines, just as are

* *New York Medical Journal*, Jan. 1st, 1901 ; *British Medical Journal*, Jan. 1st, 1901.

the body cells, then we have to recognise two possibilities. Infection may lead to one or other effect upon the body cells. Either it may weaken and eventually destroy those cells, or, if the constitution be strong and the virus not too potent, the cells eventually gain an increased power of neutralising the toxine, whereby immunity is developed. The individual, for example, is either killed by small-pox, or, if he survives, is protected against another attack, and what happens to the individual is the resultant of what happens to the cells composing that individual.

If, therefore, in these matters the germ cells are affected like the rest, then, to take a concrete example, tuberculosis in the parent must affect the offspring in one of two directions. If there is severe and progressive parental intoxication, the germ cells may be regarded as being weakened, and the offspring weakened also and rendered more susceptible to tuberculous infection in particular; if, on the other hand, the parental economy has reacted successfully and by the production of increased antitoxic substances has arrested the advance of the disease, then the germ cells may also be regarded as participating in the acquired power of increased resistance to the tuberculous toxines, and the offspring as showing greater refractoriness towards the disease. In other words, it becomes possible that we have to deal with two sets of individuals the offspring of tuberculous parents (1) those who are weakened and whose lives are likely to be shortened, and (2) those who have gained an increased immunity to the disease, whose lives to this extent tend to be lengthened above the normal. Indeed, there are those already who urge that parental tuberculosis confers increased immunity. At the meeting of the British Congress of Tuberculosis in London in 1901, a paper was contributed, in which the author showed, by a careful statistical examination of several families, that such increased resistance is recognisable, and the same has been suggested by more than one German observer.

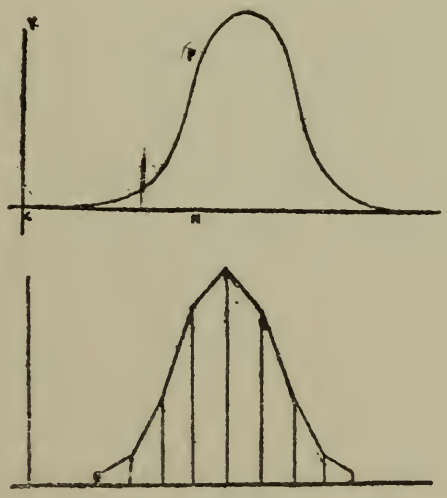
In confronting you with this dilemma, you will, I fear, gentlemen, regard me as a very Balaam, and will return to me, with compound interest, the compliment paid by the prophet to the Moabites, or rather not paid by him to the children of Israel.

There is, however, it would seem, a way opening out of this difficulty, and it may well be that, in showing you this way, I perform a greater service than I can do by merely discussing this subject of inheritance, if, indeed, the actuaries have not forestalled me.

Both those of us who are studying this matter from the standpoint of pure science, and those of you who are doing the same for its direct practical bearing in insurance matters, are anxious to have something

firmer upon which to stand than theoretical deductions. We desire a firm, unassailable foundation of facts; we desire statements that are mathematical in their accuracy. At last, I am rejoiced to point out, a beginning has been made, and that by Karl Pearson, the well-known Professor of Mathematics in University College, London. If it will not detain you too long, I desire to bring before you Karl Pearson's method, for it appears that, applied by the insurance actuaries to the data possessed by them, it will solve this question of the exact value to be placed upon parental disease as a factor in estimating the probability of life in the individual. You will find a very clear presentation of the method by Robert Worthington in the July number of the tion of the method by Robert Worthington in a recent number of the Journal ofAnatomy and Physiology (vol. xxxv. pt. 4, p. 455 *).

Karl Pearson's method consists in taking, say, 1,000 measurements of one organ, sorting these measurements into groups in such a way that those in any particular group differ only within a small specified range. For example, if the measurements be of stature, they might be sorted into groups differing by half an inch (if of life periods by groups of a year of age.) If now such a system of group measurements be plotted on paper with reference to two axes at right angles, so that the ordinates represent the number of measurements, and the abscissae their typical measurements, then on joining the points so obtained, we shall obtain a polygon somewhat of the form shown in this diagram:—



* Pearson's most important papers on the subject are :

Contributions to the Mathematical Theory of Evolution, Phil. Trans. R.S., 185 A

On Skew Variation in Homogeneous Material, Phil. Trans. R.S., Vol. 186 A.

Regression, Heredity and Panmixia, Phil. Trans. 187 A.

On the Inheritance of the Cephalic Index (Miss Fawcett and K. Pearson, Proc. R.S., 72, p. 413.)

A First Study of the Variability and Correlation of the Hand (Miss Whitely and K. Pearson, Proc. R.S., 75, p. 126.)

This is known as a "frequency polygon." If the number of measurements is large, it will not be difficult to draw a continuous curve through the angles of the polygon. Now, as a matter of fact, in the majority of cases of measurements of one detail, as, for instance, of the length of one or other organ or part of an organ in a homogeneous population, this curve of variation approaches curiously close to what has long been known to mathematicians as the curve of "probability of error." And if we venture to assume that these curves are identical, then we have an exact mathematical basis for our study of inheritance and its effects, for this curve of probability of error is a pure curve, and as such its various properties can be studied and determined. It is this assumption which Professor Pearson has made, and, starting from this, he has already obtained most valuable results. He is able to obtain such values as the probable error, probable deviation, the mean (or abscissa of the "centre of gravity" of the area enclosed by the frequency curve), the mode (or abscissa of the ordinate of maximum frequency), the standard variation (or index of variability)—and gains thus a valuable basis for discussing asymmetrical frequency or skewness.

For he finds that in biological statistics most frequency polygons are not symmetrical about the maxim ordinate. This skewness may be due to one of two sets of causes:

(*a*) The material dealt with may be heterogeneous and consist of a mixture of two or more homogeneous materials.

(*b*) The material may be homogeneous, but tend to deviate more to one side of the mean than to the other.

I will leave those of you who are interested in the matter to follow the mathematics of the subject, clearly set forth as they are, in Mr. Worthington's paper. What I wish to point out is that by the application of Karl Pearson's methods to the material in the hands of the great insurance companies, it will be possible to give a mathematical expression to the effects, if any, of parental disease upon the duration of life of the offspring by comparing the frequency curves of death of those of tuberculous ancestry with the frequency curves of the deaths of those of non- tuberculous ancestry. It will further be possible to determine whether there is such skewness or asymmetry in the first curve as can best be explained by assuming that we have a mixture of two or more homogeneous materials, *i.e.*, whether one group of the offspring are strengthened, and so afforded a longer period by parental tuberculosis, another definitely weakened and led to die at an earlier age by the same influence. It will also determine the value to be placed upon the influences of family tuberculosis when the parents themselves are not tuberculous.

I have of necessity been painfully brief in my references to Karl Pearson's remarkable work. I can only urge those interested in this matter to study his writings and deductions, for they seem to me to afford an opportunity to settle this question of the effect of parental tuberculosis and other diseases in a way which is not possible by any other means—by the ordinary method of striking averages, for example.

You will have observed that so far I have dealt wholly with but one form of inherited conditions, namely, with those direct or indirect inheritances due to diseased conditions which have been acquired by the parent or parents. There is yet another group where the morbid conditions are, or have been, in a longer or shorter line of progenitors, and here also it is to be recognised that some at least of these morbid conditions must have an influence upon the duration of life, though not all of them belong to this category. Cases, for example, of sex-digitism, of Daltonism (color blindness) and Albinism, do not necessarily interfere with the vitality, if I may so express it, of the individual. Other conditions like Hæmophilia, which has been traced through long generations in several families, when they show themselves in the individual, are liable to shorten life. A recognised "bleeder" is distinctly an unsafe individual, and must be shunned by insurance companies, for at any moment some trivial accident is liable to lead to a fatal hæmorrhage. What is more, we recognise that the liability to tuberculosis is peculiarly evident in certain families, that there is a tuberculous diathesis, as again there is a gouty diathesis, and we may be unable, and in fact generally are unable, to point definitely to the particular ancestor who acquired tuberculosis, gout, etc., from whom the predisposition to one or other disease has been inherited.

I cannot now take up the full consideration of this subject of racial or family inheritance, and must ask you to accept this, that in certain cases these orders of inheritances would seem to develop as what is known as "spontaneous variations" on the part of one or other individual. Certain fusions of the two germ cells lead from unknown causes to the production of "sports." As you know, no two individuals are alike, and just as in throwing three dice one may rarely throw three sixes or three ones, so in conjugation the result, instead of being, as is usually the case, something approximating the mean, may be an extreme variation. And once this extreme variation shows itself in a family, there is a peculiar liability that subsequent generations may inherit the extreme characters.

But this does not include all cases of family inheritance. We are, I think, bound to conclude that some cases at least have originated,

not as spontaneous but as definitely acquired conditions, and that, for example, a family predisposition to tuberculosis may have originated from one or more ancestors having acquired this disease, and through this acquirement having produced modified descendants showing certain imperfections in bodily development, and rendered more prone themselves to fall victims to the disease. Such cases are but of the same order as those about which I have mainly spoken this evening.

These, however, are relatively minor considerations, although, to give you a comprehensive grasp of the subject, it is right that I should refer to them. I shall be satisfied if I have given you some understanding of what are the problems which we have to deal with in discussing this subject of inheritance, and if by any chance I have indicated to you the lines along which a study of the subject may be productive of definite results capable of direct application to the problems which confront you in the matter of life insurance.

AN ANALYSIS OF CASES OF GASTRIC ULCER OCCURRING IN THE ROYAL VICTORIA HOSPITAL DURING THE PAST EIGHT YEARS.

BY

F. P. L. Cantlie, M.D.,
Externe in Clinical Medicine.

Of the 20,596 cases admitted to the Royal Victoria Hospital during the last eight years there were 85 cases of gastric ulcer making a percentage of .004. Of these 85 cases, there were 3 males and 82 females; more than one half Canadians and more than one-quarter having been born in Great Britain; the other small proportion came from various places, chiefly from the United States, Ceylon, West Indies and Sweden.

The ages varied from 17 to 70, the average being 27½; there were 8 cases under 20 years of age, and 10 over 40; the most frequent time of all was the third decade, 49 out of the 75 cases in which the age was recorded being between 20 and 30 years old. It is interesting to note in this connection that all the perforations took place during this period, and the hæmorrhages were likewise more common. Only two patients were over 50 years of age.

Etiology: As regards the occupation, 34 cases were servants, 14 were housekeepers, and only two gave occupations definitely as cooks; the other cases were variously seamstresses, nurses, clerks, etc. In only three cases was trauma directly associated with the gastric ulcer—in the one case it having followed almost directly upon a kick in the side from a horse, and in another upon a fall. Anæmia was an associated condition in 42 cases.

Complaints: As regards the complaints: In 54 of the cases the symptoms were referable entirely to the stomach; in 19 there were other symptoms in addition, while in 5 the stomach itself was not taken into account. Of those cases in which there were complaints referable to other parts than the stomach, the chief indications were either those following upon or coincident with anæmia, such as headache, weakness, pain in the back, dyspnoea and palpitation, or again there were, precordial pain, complaints of sore throat, cough, sweats, sometimes chills and not infrequently signs in the pelvis.

As regards the more special complaints made by the patients pain was declared to be local in 44 cases; vomiting was complained of in 35; hæmatemesis in 20; weakness, headache or backache, respectively, in

about the same number. The record of complaints, however, is of not much importance, the data depending on the reliability of the patient's statements or the extent to which the clerk enquires from the patients as to their respective complaints.

The combinations of complaints, however, may be of some interest, and it was found that the most frequent combination of complaints was pain in the stomach and vomiting and weakness, of which there were 35 cases out of the total of 85 cases.

Onset: The onset was manifested in 78 cases by pain, in 67 cases by vomiting, and in 45 by hæmatemesis. There were also general weakness and malaise in more than 20 cases, while in a large number the minor signs of indigestion were superadded. Chills ushered in the symptoms in three cases, trauma in three, while in one the onset was associated with the symptoms of spinal curvature. This case is of especial interest:—

She was a girl aet. 33, born in Canada, and admitted to the Hospital in 1895 for hæmatemesis. The onset had been gradual, the patient having had for several years previously some pain in the back attributed then to spinal curvature, when a plaster jacket was applied for eight months. After removal of this she complained still of pain in the back and severe pains in the stomach and vomited at that time dark clotted blood. Since then she was quite well until two weeks before her present admission when she gradually became pale, manifested some shortness of breath, palpitation and again hæmatemesis. Examination of the patient showed no evidence whatever of spinal curvature, but all the typical signs of gastric ulcer.

This case is of special interest as corresponding to one recorded by Dreschfeld some years ago, in which the only sign at the time was tenderness over the spine, which was at first diagnosed as spinal disease, the true condition only being cleared up when a sudden and fatal hæmatemesis took place.

Symptoms: The three cardinal signs of gastric ulcer, viz: Pain, vomiting and hæmatemesis, existed in the following proportions:

Pain and hæmatemesis	44
Pain without hæmatemesis	30
Hæmatemesis without pain	5
Vomiting and hæmatemesis	52
Vomiting without hæmatemesis	26
Hæmatemesis and no other vomiting, in	4

Pain: This was described in 73 cases as local, in 5 as diffuse; the pain in 15 of these cases was referred to the back. As regards the time of occurrence and duration of the pain, in 67 it was after meals; 36 of these being immediately after meals, 10 one hour after, and in 6 two to

four hours after meals. The pain was continuous for hours in 37 cases, in 10 it occurred at night, and 2 early in the morning, and in 7 it was described as irrespective of meals. In four cases alteration of the position relieved the pain, but in only four. In two-thirds of the cases the pain was described as sharp and cutting or gnawing, and in 15 as being of a dull ache.

Vomiting: This occurred in 76 cases, 52 after meals. Of these, 19 occurred at once after meals, and in 12 one-half of one hour later. In only five cases did the vomiting come on three hours after meals. In 52 cases there was blood present with the vomitus; in 32 pain was relieved by the vomiting and in only four cases was vomiting absent. In 5 cases no record was made of the symptoms. There was melæna in 12 cases so far as the records show, though this seems an unusually small proportion of all the cases in which haematemesis likewise occurred.

Diarrhœa was described in only one case, and in 17 cases the records show the bowels to have been regular.

Some interest attaches to the sign of tenderness, and in only 28 cases has it been definitely described as well localised, whereas in 26 it is described as being more or less general over the gastric area. In 13 cases the tenderness was diffuse, in one case it was referred to the right hypochondrium only, and in about 10 cases there was tenderness anywhere in the abdomen.

As regards the appetite, there is some interest to be attached to this if one is to regard hyperacidity as being a frequent coincident symptom of gastric ulcer. Whereas, one usually finds in hyperacidity an increase in the appetite, we have found here in our cases 54 in which the appetite was described as distinctly poor, in 15 it was good, and in the others very variable.

The heart showed various conditions; in 51 it was described as normal, though this is probably not true; in 13 there was evidence of some dilatation from the anæmia, with regurgitation through the mitral valve; in 10 other cases there was simply a systolic murmur at the apex not transmitted. In 10 others there was hæmic murmur at the pulmonary cartilage, and in two there was concurrent mitral stenosis.

Surgical Cases: Of these all but one were admitted after perforation had occurred—the exception was transferred from the Medical Wards. Eight cases were operated upon, seven by Dr. Bell and one by Dr. Garrow. Of the eight cases seven recovered. The ages of these cases, as has already been referred to, varied from 20 to 30, the average age,

however, being 21. A word or two in detail about these surgical cases may be of some interest:—

Case 1. This case was operated on 4½ hours after admission,—hours after perforation had occurred. There was general peritonitis, but the patient made an uninterrupted recovery, sitting up on the 32nd day, and discharged on the 36th.

Case 2. The second case was operated on 12 hours after perforation; general peritonitis in this case also; sat up on the 37th day and was discharged on the 38th.

Case 3. In the third case the operation took place hours after perforation and two hours after admission. There was general peritonitis. In this case the recovery was slower, the patient being discharged only on the 72nd day.

Case 4. Here perforation had occurred 8½ hours previously; general peritonitis; but again the patient made an uninterrupted recovery being discharged on the 34th day.

Case 5. The fifth case was operated upon 20 hours after admission; general peritonitis present; and was discharged on the 59th day.

Case 6. In this case, which ended fatally, the perforation had occurred 58 hours before operation was performed, and the patient died 10 hours later.

Case 7. In this case the operation was performed 12 hours after perforation; general peritonitis was present; the patient was discharged on the 30th day.

Case 8. In this eighth case, the operation took place 8 hours after perforation, there was general peritonitis, but here, too, the patient made a rapid recovery, sitting up on the 24th day.

In all these cases the treatment was fairly uniform after operation; nutrient enemata were given for the first few days, and from three to five days liquid diet was given by the mouth, milk and lime water being the favorite food. Within the first week custard, arrowroot, or weak coffee was given and within two weeks more solid food, bread and butter, etc. This diet was maintained for another week or ten days, after which solids were given—solid food always being given within a month after operation had been performed.

Of the 83 cases of which records have been kept, 39 are recorded as cured, 34 as improved, one case is noted as unimproved, and 6 the result is unrecorded. Two patients died, the one of perforation and general peritonitis, and the other of hæmorrhage. In this last case multiple erosions were found post mortem.

It is a great pleasure here to acknowledge, with thanks, the constant interest taken and advice give me by Dr. C. F. Martin during the preparation of this analysis.

REPORT ON CASES OF TYPHOID FEVER TREATED IN ROYAL VICTORIA HOSPITAL DURING YEAR 1902.

BY

COLIN K. RUSSEL, B.A., M.D.,
Senior Resident Physician.

During the year 1902 there were treated in the wards of this hospital 90 cases of typhoid fever, 58 males and 32 females. Of these 75 were treated to a conclusion, and 15 are still under treatment. The latter are not included in the present report. The mortality was 5.4%, there being 4 deaths, two of which resulted from toxæmia and two from perforation.

The following data are the points of interest :

Age: The average age of all the patients was 23 years, the youngest being 3 years old and the oldest 63 years.

Arranged in decades, they are as follows:

Up to 10 years of age	6
Between 10 and 20	19
" 20 " 30	36
" 30 " 40	11
" 40 " 50	1
" 50 " 60	2

Season: The largest number of cases were admitted during August, there being 17 admissions during this month; no cases were admitted during April.

July, August and September	45.3 per cent.
October, November and December	29.3 "
January, February and March	16.1 "
April, May and June	9.3 "

The average day of disease on admission was 9.

The average number of days in the hospital was 38.5.

The average duration of fever after admission was 31.5 days.

The longest period of fever after admission was 42 days.

The shortest period of fever while in hospital was 7 days, of which there were two cases. Both being admitted on the 8th day of disease, one with a temperature of 103^4 and the other with a temperature of 103.

Infection: In four cases the patients had been nursing other members of their families suffering from typhoid.

One case was the medical ward orderly.

One case was an employee in a factory in which 18 other cases of typhoid developed.

In another case the drinking water was taken from a well in the cellar; there were 3 other cases of typhoid in the same house.

Symptoms: In 97 per cent. of the cases the onset was gradual, the most frequent symptoms being anorexia, general malaise, headache, chilly sensations and generalized pains.

In two cases the onset was sudden with chilly sensations. In another the onset is reported as abrupt, with weakness and headache, nausea, vomiting, and pain in abdomen, and definite chills and rigor.

Diarrhœa was present at the onset of the disease in 33.3%.

Constipation was present at the onset of the disease in 48%.

Vomiting was present at the onset in 32.2% of the cases.

Delirium was present during the onset or course in 20% of the cases. In all cases except one it was low and muttering. In that case it was noisy and violent.

Epistaxis occurred during the onset in 18.6% of the cases.

Eruption: An eruption was present in 81.2% of the cases. In every case it is noted as being of the character of "rose spots." In 70.5% of these cases the eruption was present on admission.

The earliest appearance of the rash was on 4th day of disease.

The latest appearance of the rash was on the 29th day of disease.

In two cases the rash appeared only during the relapse.

The shortest duration of the rash was 3 days.

The longest duration of the rash was 27 days.

The average duration of the rash was 15 days.

Spleen: The spleen was palpable in 62.6% of the cases. In 54.2 of these cases it was palpable on admission. In one case it was felt as early a the 4th day. In another it was not palpable until the 36th day of disease. On the average it remained palpable for 19.9 days. In one case it was palpable for only three days, while in another it was palpable for 53 days.

Relapse: A definite relapse occurred in 13 cases—17.2%

The longest duration of the relapse was	27	days.
The shortest	"	"	"	"	7	"
The average	"	"	"	"	15	"

In 2 cases the relapse was more severe than the original attack. In one of these cases it occurred on the 17th day of disease, when the temperature had been normal for 2 days. It came on after the child had eaten a part of an apple given her by her friends. The relapse lasted 27 days.

Fever: The highest temperature recorded was 105.8. The lowest maximum temperature was 101.8. The average maximum temperature was 103.9. The temperature reached 104 or over in 40% of the cases.

Complications: Digestive System. Cholecystitis developed in 2 cases, and later in one of these cases there was an intestinal hæmorrhage, amounting to about three ounces. This patient also had mitral endocarditis with regurgitation and a chronic interstitial nephritis, and a day or two after admission she developed Varicella. She made a good recovery from the typhoid. Another case was complicated by chronic appendicitis. There were 4 cases of intestinal hæmorrhage. Perforation occurred in two cases. One was operated on, but died; the second died without operation.

Respiratory System: Acute bronchitis was present at onset in 12.5% of the cases.

Pulmonary œdema was present in one case.

Pleurisy with effusion occurred in 2 cases.

Tuberculosis was present in one case.

Emphysema was present in one case.

Other Systems: Suppurative Keratitis developed in one case.

Purulent Ophthalmia developed in one case.

Otitis Media was present in 2 cases.

Multiple Abscesses in 2 cases.

Ischio Rectal Abscess in one case.

Periostitis developed during early convalesence in one case.

Acute Parenchymatous Nephritis developed in two cases, and Chronic Nephritis was present in two cases.

Febrile Albuminuria was present in 61.2% of the cases.

Widal: The test was tried in all cases. It was negative in 6, five of which had the usual symptoms and course of typhoid, and 4 of which had rose spots on abdomen and palpable spleens. One of these was an employee in a factory in which there were 18 other cases of Typhoid fever. The 5th case showed no rose spots while in the hospital, but the spleen was palpable, and the patient had a relapse, which occurred on the 27th day of disease and lasted 12 days. The 6th cise is reported at length below. This case was diagnosed only at post mortem, and the Widal which was taken after death was negative.

The test was tried in 39 cases on discharge; it was found present in 35, absent in 3, and doubtful in 1.

In one case it appeared on the 5th day.

In another it was not present until the 24th day of disease.

It was present on the average on the 13th day of disease, but in 21 cases it was present on admission.

Ehrlich's Reaction was present in 42.3% of the cases in which it was tried. The average day of disease at which it appeared was the 13th. The average duration of its presence was 6 days.

Synopsis of the four fatal cases: Typhoid fever with perforation. Operation—death.

Case 1. F. F., aged 37, male. Case No. 7104. Patient was admitted to the hospital on August 1st, 1902, complaining of general malaise, headache, anorexia, weakness and diarrhœa of seven days' standing. On examination he was found to be a tall spare man, very poorly developed, both mentally and physically; skin, hot and dry; lips and finger nails somewhat cyanosed. Rose spots were present on abdomen. The spleen was not palpable, neither Ehrlich's nor Widal's reaction were present. Temperature 103^3. Pulse 100. Respirations 24. Chest deformed and small.

Signs of consolidation in left apex and axilla.

Some displacement of heart to median line, otherwise the examination of heart was negative.

Subsequent events: General cold bath treatment was ordered for temperature 102^2 and over and well borne.

During the evening (10.30 p.m.) of the 12th day of disease, four days' after admission, he complained of slight abdominal pain, which, in the course of an hour, became very severe and cramp like, this was followed by chilly sensations. Examination of abdomen showed some rigidity in left iliac region and considerable tenderness over whole abdomen, especially over region of appendix. T. 101^2. Pulse 96. R. 30. Pain was relieved by hot lead and opium fomentations.

One hour later (11.30 p.m.) T. 96^4. P. 96. R. 30.

Four hours later (3.30 a.m.) abdomen was quite rigid and at this time there was a friction rub heard in left axilla for the first time. Throughout the morning the pain and rigidity increased and pulse became more rapid—124. There was no record of leucocyte count.

Operation performed at 3 p.m., August 6, 13th day of disease. On opening the abdomen, free pus was found in peritoneal cavity. A perforation was found in ilium, 18 inches from ilio-caecal valve. The perforation was closed and abdomen flushed out with saline and the incision partly closed and drainage inserted. Patient stood the operation well and the next day was doing well.

The following day, Aug. 8, the abdomen became distended and the pulse was weaker, these symptoms became more marked and vomiting set in and he died Aug. 10. No. P. M. was granted.

Typhoid fever—Perforation and death.

Case 2. Act 29. M. R. Patient was admitted to hospital Dec. 8th, 1902, complaining of headache, nausea, and vomiting, diarrhœa, definite

chills with rigor of 8 days' standing. On examination he was found to be a well nourished, muscular man; mental condition dull and apathetic; spleen was palpable; rose spots present; Ehrlich's and Widal's reactions present. The urine was found to contain a gram and a half of albumen to the litre.

Subsequent events: General cold bath treatment was ordered for temperature of 102° and over.

On the 11th of December patient complained of pain low down in abdomen, and on examination it seemed to be situated over the middle of Poupart's ligament on both sides; there was no rigidity of abdomen, no distension, and pulse was not over 82. The pain disappeared very shortly, and the disease ran a favorable course until early in the morning of Dec. 31st, when he complained of severe abdominal pain and tenderness; pulse 112; rigidity not marked; no distension; liver dulness extends to ½ inch from costal margin; leucocyte count averaged 5.500.

At 8 a.m., pulse 120; fairly strong; some cyanosis; rigidity more marked; tenderness not so marked; some distension. There was not much change in pulse. Leucocyte count averaged 9.900. Pulse now rapidly became much weaker and patient sank rapidly and died at 9.30 a.m. without operation.

Post-mortem there was found to be a very extensive ulcerative process, beginning at the lower end of jejunum, extending through the ileum, appendix, cæcum, colon and rectum to within 3 inches of the anus. The typhoidal appendicitis was extreme and the extreme tip of this organ was perforated, this seemed to be of some days' duration and was older than the perforation which had taken place in the ileum 8 c.m. above the valve. Kidneys showed definite parenchymatous nephritis.

Typhoid Fever, Toxæmia, Intestinal Hæmorrhage: Extreme Toxæmia and death.

Case 3. P. D., aet. 18. Patient entered hospital August 20th, on 7th day of disease complaining of general malaise, headache, anorexia, epistaxis and melæna. On examination he was found to be a fairly well nourished young man, muscles flabby and soft. Abdominal distension marked with some tenderness in epigastrium and over splenic area. Spleen palpable. The following day patient was quite delirious, and wanted to get out of bed. Had severe epistaxis, involuntary micturition, and defæcation with melæna. Twitching of face and arms; pulse irregular and of low tension. These symptoms gradually became more marked, and patient died on the morning of the 26th August from extreme toxæmia.

Typhoid Fever with Purpuric Eruption, Toxæmia and death.

Case 4. W. R., aet. 63. Admitted to hospital December 6, 1902, complaining of cough, dyspnœa and weakness. The onset 7 days previous was characterized by slight pain in stomach, followed by cough. There was a history of exposure two days later, followed by definite chills. He became worse, was delirious and had involuntary micturition. There was a previous history of chronic alcoholism. On examination the patient was found to be an old man in a semi-conscious condition. His respirations were rapid and stertorous, pulse irregular in volume and rhythm, and there was some cyanosis. There was a purpuric eruption over the body. Lungs were very emphysematous, with all the signs of consolidation at the right base posteriorly, and dry and moist rales all over the chest. No rose spots were present. Spleen was not palpable. In the course of the following day the delirium became more marked. On December 12 the temperature suddenly dropped to normal; the pulse became very much weaker; respirations were greatly accelerated, and patient sank and died.

P. M. Intestines showed 10 typhoid ulcers. Zenker's degeneration was remarked in rectus muscles, with hæmorrhage into right rectus. There was marked emphysema of the lungs, fatty degeneration of heart, and slight atheroma of the aortic valves. Inflammatory hyperplasia with liquefaction of mesenteric glands.

The Widal which was taken after death was negative.

OBSTRUCTION OF THE BOWEL BY A LARGE GALL STONE. OPERATION—RECOVERY.*

BY

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The following case is of sufficient interest, both on account of its rarity and importance, to bring before this Society.

History: Mrs. H., a widow, aet. 72, rather stout, has never been seriously ill and there is no history of gall-stone colic. Some days ago she slipped and felt something give way in her abdomen; she was fairly well afterwards but always felt as if there was something amiss in the abdomen. On Sunday, February 8th, 1903, after a hearty supper, she went to bed and was awakened Monday morning by an attack of diarrhoea, she had three stools. Soon vomiting came on but no nausea; this continued all day and was without effort, more like regurgitation of intestinal contents. Dr. Gordon Campbell saw her on Monday, purgatives were administered without avail; pulse and temperature normal; no flatus had passed since Sunday. Dr. Campbell, recognizing the case as one of obstruction, called me in Tuesday evening. All that day she had been vomiting and had suffered pain, probably from the purgatives administered. When I saw the patient her pulse was full, 76, temperature normal, no distension, but some tenderness about the umbilical region on pressure. Vomiting was continuous, without effort and was not preceded by nausea. Seeing that there was evidently obstruction due to some unknown cause, I advised an exploratory incision. She was removed to the Montreal General Hospital and operation was commenced at 10.30 p.m. The incision was below the umbilicus and of considerable length because of the stoutness of the patient. On opening the peritoneal cavity and introducing my hand I almost immediately came upon a hard substance within the bowel The bowel was pulled out and it was found that a solid body was wedged into it like a cork. Immediately about it the bowel was dark colored. The contained substance would not be forced on but was easily pushed back, and as soon as healthy bowel was reached an incision was made in the long axis of the bowel, opposite the mesenteric attachment, and the stone removed.

The incision in the bowel was sutured in two layers with silk, first

* Read before the Montreal Medico-Chirurgical Society, March 20, 1903.

the mucous membrane by a continuous suture, and then the outer coats with a continuous silk Lembert's suture. The abdominal wound was closed in layers, the deeper with cat-gut, and the skin brought together with silk-worm gut. The patient went on well and the bowels moved on the second day with an enema. She had no drawbacks and was discharged at the end of three weeks well. I saw her yesterday (March 19th) and she is going about as usual.

The gall-stone measured 10 cm. in its greatest circumference and about 5 cm. in its greatest length. It is of a dark brown color, sinks in water, and on section is made up of concentric layers of soft brown material. It appeared as if it had been pocketted somewhere and that its sharp end had protruded into the bowel, for this was covered by a comparatively fresh layer of faeces; there was a distinct ring where the protruded part apparently was held. It had not the ordinary appearance of a gall-stone. There never was any history of gall-stone colic. The mass had been arrested near the beginning of the ileum, which, as is well known, is smaller than the jejunum.

The fact that it was dislodged by a sudden movement is in favor of this body being a gall-stone; but there was never anything pointing to gall-stone, no colic, malaise, or any inflammatory attack at any time. Mr. Lund (London Lancet, 1896), reports a similar case of an impacted gall-stone without any history of gall-stone colic.

Obstruction from gall-stone is a very fatal affection. Kermisson and Richard, out of 105 collected cases, gave the mortality as 50% (Mayo Robson). Lobstein collected 92 cases, of the 62 cases not operated on 32 recovered and 29 died; of the 31 operated on 12 recovered. Many were moribund at the time of operation (Robson).

It is curious how small a stone has caused obstruction and how large a one has sometimes passed per rectum.

The remarkable thing about the present case is that so large a stone should have ulcerated through the gall bladder into the duodenum without producing any symptoms whatever, not even malaise.

Note.—Since the above was written Professor Ruttan has kindly examined the enterolith for me, and finds that it is undoubtedly a gall-stone, cholesterine being quite easily demonstrated.

HYATID DISEASE.

BY

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The case I have to report is one rarely met with in this part of Canada. Iceland and Australia stand out pre-eminently as the home of hydatid disease, and there is a good deal of it amongst our Icelandic emigrants of the North-west. It is figured that 1-30th of the people of Iceland have the disease. Osler has collected reports of 85 cases in Canada and the United States. The commonest situation for echinococcus cysts is in the liver. Thomas compiles a table from 900 cases, 57 per cent. of which were found in that origin, and of the 85 cases collected by Osler the liver was the seat in 59.

Morris M. presented himself at my out-patient clinic, complaining of pain in the right side and shortness of breath. The patient is a Roumanian Jew, emigrant, and has been in this country about a month. He has always lived in Roumania, and is a teacher.

He states that his illness began two weeks ago when he first noticed a slight distension below his ribs on the right side; before this time he had no distress, but within the past few days, cramps and pains in this region have been severe and he has been short of breath.

His general health has been good, appetite fair, bowels regular, no jaundice or chills. His habits have been good, no syphilitic or alcoholic history. Temperature and pulse normal. One notices on the scalp areas of alopecia, probably from favus in childhood.

The nourishment is fair, muscles poorly developed. On deep respiration he supports his right side and gives evidence of pain. The hypogastric and epigastric regions project more than normally, and over the right hypogastric region the skin is reddened from the application of a blister.

On palpation over the right hypochondriac region a hard, smooth, somewhat elastic mass, with rounded edges, is felt, continuous with the liver and extending 2 1-2 inches below the costal margin, and 2 1-2 inches to the right of the sternum. There is no thrill on palpation.

On examination of the right chest, pulmonary resonance is lost in front below the 4th rib, in the axilla at the level of the 6th rib, and behind to the 8th rib. Breath sounds are much diminished over this

dull area. No râles. The area of hepatic dulness in the mamillary line is 5 1-2 inches. Circulatory, gastro-intestinal and genito-urinary systems negative. From the absence of any signs of abscess of the liver, disease of the gall bladder, or hydronephrosis, the diagnosis tended to ecchinococcus disease of the liver, and under a general anæsthetic in the ward, with relaxed abdominal muscles, the mass projected and was more especially easily palpated.

An aspirating syringe was entered at the most prominent part and at a depth of 2 inches, entered a cavity and 30 C.C. of a clear limpid fluid was withdrawn, relaxing the tension in the tumour.

The fluid examined was found to have a sp. gr. of 1005, a slight trace of albumen, no sugar, a large proportion of chlorides, and when centrifugated a few red blood cells were found but no hooklets. The albumen and blood got in during the needle's passage through the rectus muscle. Though not conclusive, due to the absence of hooklets, a diagnosis of ecchinococcus cyst was made, and the patient transferred for operation to the surgical wards.

A RARE CASE OF CONGENITAL UMBILICAL HERNIA.*

BY

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On Sept. 13th, 1902, a midwife, at whose house the confinement had taken place, brought a three day's old male infant to my clinic at the General Hospital. At birth the accoucheur noticed a cystic tumor at the umbilicus, apparently attached to the cord, whose tissues appeared to spread over it, and he was therefore obliged to ligate the cord at a point beyond the tumor (Fig. 1). The covering of this tumor was entirely serous; its size was about that of an orange, and palpation showed that its contents were continuous with those of the abdominal cavity. It was absolutely dull on percussion. The child had vomited once only, a few hours before admission to Hospital; had micturated normally and had several normal stools. The serous covering of this hernial protrusion (for so I judged it to be), had very naturally become infected, and the characteristic odor was well marked.

I at once decided that if general septic peritonitis was to be avoided, prompt attention was necessary, and therefore, under chloroform anaesthesia, excised the affected sac, cutting close to the muco-cutaneous junction at the umbilical opening, having previously freed and ligated the vessels of the umbilical cord below the tumor.

I found the contents of the sac to be the cæcum (with its vermiform appendix), the ascending and transverse colon, and, so far as I could judge, about half of the small bowel. These viscera were collapsed and empty, but in no way strangulated. The infection of the parietal layer of the peritoneum which had formed the sac, had spread through to the visceral layer, and these coils of intestine, large and small, were much injected, adherent to one another and were covered with recent lymph which could be peeled off. Before making any effort to return them to the peritoneal cavity I separated the adhesions, under a stream of warm sterile saline solution, removed the lymph, and so far as I could, thoroughly cleansed the coils of intestine. I then enlarged the umbilical opening on a director and easily returned the viscera into the abdominal cavity through the opening. I had expected some difficulty here, because so far as I knew, these bowels had possibly never previously been in the abdomen, and certainly not since some time prior

* This case was exhibited at the Surgical Clinic given at the Hospital during the meeting of Canadian Medical Association, Montreal, September, 1902.

to the child's birth; but the reduction was quite easy and it only remained to close the umbilical opening. This I did by suturing the peritoneum with a continuous fine cat-gut suture, and then closing the skin and muscles with through and through sutures of silk-worm gut. A carefully adjusted dry pad with abdominal binder completed the dressing, and as the mother was not in the hospital I gave the child over to the charge of the midwife again, with instructions to report daily.

The wound healed kindly, the sutures were removed on the 10th day, the line of incision coated with collodion and a pad and bandage ordered to be kept applied. As the child was an illegitimate one it was sent to a foundling institution on the 11th day and I have only heard of it once since, when it was about three weeks old. It had been thriving perfectly well and its digestion and intestinal functions appeared to be performed as well as though it had not entered life with this congenital handicap.

On looking into the literature of this rare and interesting condition I find that it corresponds with that form of umbilical hernia known as "Congenital Hernia of the Cord," an excellent description of which will be found in the International Textbook of Surgery (1900), Vol. II, p. 482. It is not a true hernia, as Malgaigne points out, "for it is concerned not with viscera which have escaped from a cavity, but with viscera that have entered it," and is due to a defect in the normal closure of the visceral plates which should take place in the umbilical cord during fœtal life. If the tumor is small and its contents can be returned, operation (which as I have shown is not a difficult proceeding) should be done and done at once before infection takes place. Statistics show that out of 19 cases reported as operated upon, there were 17 recoveries and only two deaths; while of those which were treated by compression, 9 died and 3 recovered.

In this case owing to the presence of infection when I first saw it, there could be no question of any form of treatment other than immediate operation.

RESUME OF RECENT LITERATURE ON THE TREATMENT OF CHRONIC SUPPURATION IN THE FRONTAL SINUS AND MAXILLARY ANTRUM.

BY

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The importance of suppuration in the accessory sinuses of the nose, seems to increase from year to year, and the careful study which rhinologists have of late devoted to this branch of their art has led to marked advance in the surgery of these sinuses and to a considerable measure of success in the treatment of diseases involving them.

The first essential in the treatment of chronic suppuration, in any of the nasal sinuses, is to obtain free, unhindered drainage; this alone will often give great relief and may effect a cure. Should it fail, the next step is to remove the thickened unhealthy mucous membrane lining the sinus, and in certain favorable cases, obliteration of the sinus.

TREATMENT OF CHRONIC SUPPURATION IN THE FRONTAL SINUS:—In frontal sinus disease much may be done to secure good drainage by removing the anterior end of the middle turbinate body and granulations and polypi from the middle meatus, which will free the fronto-nasal duct from obstruction.

To effect this the wire snare, the ring knife, cutting and punching forceps, are usually employed. Lock[1] lays stress upon the importance of removing the uncinate process, since its mucous membrane is often swollen, blocking the infundibulum.

Up to this point rhinologists pretty generally agree; but when these means have failed, there is much difference of opinion as to what next ought to be done: Should we try syringing the sinus through the fronto-nasal duct with some antiseptic solution, or should we proceed at once to radical operation from the exterior? In the Vienna Clinics the former method has been very largely followed. Lock, however claims it is only possible to reach the frontal sinus with a canula in about 50% of cases.

After polypi and the anterior end of the middle turbinate have been removed, he thinks an ethmoid cell is often entered by the canula, and mistaken for the frontal sinus.

Lermoyez[2] recommends syringing, but says it is possible in only about one in four cases. The statistics of many writers prove that syringing has frequently been followed by good results, especially when

the disease has been of short duration. In old standing cases where it is probable the mucous membrane of the sinus has become thickened and polypi have formed, syringing would be a waste of time.

The indications for syringing are shortly, as follows:—recent suppuration, where drainage alone has failed, where the canula can be easily passed into the sinus and where urgent symptoms are not present, and the patient objects to external operation.

The lotions most in favor for washing out the frontal sinus have been 10 grains to the ounce of boracic acid, 1 in 1000-2000 of formalin and dilute permanganate of potash solutions. When syringing is carried out it should be done daily for from 3 to 6 weeks and must be done by the surgeon himself; consequently this treatment is tedious, which is one of its chief drawbacks.

Schaefer's method of forcing an artificial passage from the nose into the frontal sinus is dangerous and must be strongly condemned.

The Radical Operations:—Tilley[3] considers the following symptoms indicate external operation:—(1) Fever, headache and profuse discharge, continuing in spite of intra-nasal treatment. (2) Where a suppurating external fistula is present. (3) Where the purulent discharge is seriously damaging the patient's health, or the mucous membrane of the nose, pharynx or larynx. (4) In case the patient may be going where skilled help cannot be obtained should obstruction occur.

Lermoyez advises radical treatment because the brain, the orbit, the respiratory tract, and the general health are endangered.

Methods of External Operation:—The Ogston-Luc method which has been so largely followed, but which has of late fallen into disrepute, consists of making an external opening into the sinus through the lower inner portion of its anterior wall, curetting, and making a large opening into the nose along the fronto-nasal duct, which destroys the anterior ethmoidal cells; then inserting a funnel-shaped drainage tube from the sinus to or through the nose and with closure immediately of the external wound. This immediate complete closure of the external wound is the dangerous part of the operation; Tilley, Rudolff, Lermoyez and Lock, state they have each had cases of acute septic osteitis of the frontal bone, resulting in death, following this procedure; while where the wound has been allowed to remain open for external drainage, septic diploitis has much more rarely occurred. After Luc's operation also, relapses have been more common than where the open method has been followed.

The advantages of this method are that it avoids disfigurement and that the anterior ethmoidal cells are opened.

Lock is especially strong in his condemnation of the method, and

says:—"The method of drainage provided by Luc's operation is neither safe nor curative." Lubet Barbon, however, claims brilliant results from its use.

KUHNT'S OPERATION:—This has for its object obliteration of the frontal sinus. Kuhnt resects the anterior wall of the sinus and sometimes a portion of the inferior wall, curettes the sinus carefully but does not enlarge the fronto-nasal duct; he leaves the wound partly unstitched and drains by the external route. The soft parts fall back against the posterior wall of the sinus and cure is complete in from three to six weeks.

This method has marked disadvantages, 1st, marked external disfigurement (Holbrook Curtis[4] has suggested that the disfigurement might be overcome by subcutaneous injection of parrafin); 2nd, diplopia frequently follows owing to injury to the pully of the superior oblique, and 3rd, the anterior ethmoidal cells which are greatly diseased with the frontal sinus are not opened.

Lermoyez advises what he calls the Kuhnt-Luc operation, a combination of the two preceding methods, namely:—Free movement of the anterior wall and careful curetting of the sinus free enlargement of the fronto-nasal duct, with destruction of the anterior ethmoidal cells for nasal drainage, and leaving the inner portion of the external wound unsutured for external drainage.

Tilley has recently recommended the following operation: Having removed the anterior end of the middle turbinate, the eyebrow having been shaved and made aseptic, an incision is made from one-fourth inch above the internal palpebral ligament upwards and outwards into the lower edge of the eyebrow to the junction of its inner and middle thirds (this incision frequently requires lengthening). Now raise the soft parts and periosteum, make a small opening into the sinus from a point vertically above the internal canthus with a gauge and mallet, and through this opening explore the sinus with a probe. If the sinus is small or of ordinary size and shallow he removes as much as possble of the anterior wall and curettes thoroughly. If hæmorrhage is great it may be checked by pressure and gauze. Next the fronto-nasal duct is freely enlarged by burrs and currettes (Roe[5] has designed a special curved burr, guarded on one side, for this purpose).

Tilley lays great stress upon a point which is certainly of great importance if we are to obtain success in these cases, namely:—the necessity of a careful search for narrow extensions of the main sinus, and for ethmoidal cells running below the main cavity and over the roof of the orbit; the cavity is then made aseptic with carbolic acid, the outer part lightly packed with gauze and a rubber drainage tube in-

serted from the sinus into the nose; a single stitch is inserted to bring together the outer third of the wound, the rest is left open. At the first dressing the gauze and the rubber tube are removed, the latter may be replaced and subsequently the cavity is syringed thrice daily with boric lotion. (Many surgeons, among them McBride and Turner[6] prefer mopping out the sinus with moist gauze to syringing, and then repacking with gauze.—This method I have followed with success.) Granulations spring up in the sinus and will unite with those of the soft parts and so obliterate the sinus. The drainage tube to the nose should be kept in until all discharge has ceased.

Double frontal sinus disease should be treated by separate skin incisions.

If the sinus is large and deep obliteration will be out of the question—here efforts should be made to keep up free drainage. The general steps of the operation are as already described. Syringing must be kept up until discharge has ceased, then the tube is removed and the external wound allowed to close. When it has been impossible to obliterate the sinus its ultimate lining is evidently a thin cicatricial tissue formed from organinzed granulation tissue.

Treatment of Chronic Suppuration in the Maxillary Antrum:—In empyema of the maxillary antrum, of recent dental origin, Lermoyez advises that the offending tooth be removed and also an alveolar seqestrum if present. If it is then found that the antrum has been opened it should be syringed out, but the opening must not be enlarged, and no attempt made at drainage through the alveolus by means of tubes. If a communication does not exist between the tooth socket and the antrum, we must carefully avoid establishing one, and the antral pus should be removed by puncturing the antrum from the outer wall of the inferior meatus, and by syringing through the puncture. Syringing should be repeated several times if necessary before undertaking more radical surgical treatment.

Lermoyez claims that by this method in from 3 to 12 syringings he has obtained a cure in 43% of his uncomplicated cases, no matter how old the lesion, and that twice he has succeeded in curing maxillary suppuration of a year's standing by a single syringing. He also claims that the percentage of cases of cure by this treatment is as high as by the old method of alveolar puncture, while by the former, cure is effected in a few days or weeks, in the latter it takes months and frequently from 1 to 2 years. Moreover, alveolar syringing is troublesome and uncomfortable to the patient and there is greater danger of the frontal sinus becoming involved; consequently in uncomplicated cases he urges alveolar puncture altogether.

When the previously mentioned conservative treatment has failed,

Lermoyez holds that either Desault's or Luc's operations are alone worthy of recognition.

Desault's operation consists in making a wide permanent opening into the antrum at the level of the canine fossa, curetting the sinus and stuffing with gauze. By this method the surgeon can watch the progress of healing, but cure is slow, the dressings are painful and unpleasant, and the results obtained are altogether inferior to those obtained by the Spicer-Luc method.

Luc or Spicer method: Here a wide temporary opening is made in the antrum at the level of the canine fossa which allows of inspection and curetting; then a large permanent communication is made from the antrum to the inferior meatus of the nose. The buccal wound is at once closed and is united in eight days; the after treatment consists only of a few syringings which are not painful. Cure is rapid and certain, according to Lermoyez, who obtained 40 cures in 46 old chronic cases which had resisted other methods of treatment, and he claims his results are confirmed by those of Lubet Barbon, Furot, Moure and others.

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CASE REPORTS.

Cardiac Disease with Embolism.

BY

F. G. FINLEY, M.D.

Mitral stenosis is one of the cardiac lesions in which it is somewhat exceptional to find a prolonged entire absence of cardiac symptoms. Huchard refers to the malady in his crisp phræsology, as "une cardiopathie dyspnéisante, hemoptoisante, embolisante."

The two cases which I bring forward this evening illustrate the last named complication. The first is an example of embolism of the posterior tibial artery, and the second of hæmmorrhagic infarct of the lung. Until the occurrence of these accidents both patients considered themselves in perfect health, and neither had suffered from cardiac symptoms.

Case 1. Mitral stenosis with embolism of the posterior tibial artery. Mme. L., aged 71, a scrub woman, entered hospital on Jan. 20th, 1903, complaining of severe pain in the right foot, calf and thigh.

At the age of 21, she had a severe attack of acute articular rheumatism, being confined to bed for almost two months. She is temperate in habits, and has had no other illness.

Her father died of dropsy and her mother of heart disease.

On Jan. 15th, she was suddenly seized, when at her work, with severe pain in her foot, extending up the whole leg, and which obliged her to take to bed.

Examination. She is a well preserved spare woman. There are large patches of leucoderma on the trunk and limbs. The dorsum of the right foot is swollen, œdematous and slightly reddened. There is much pain in the limb, and marked tenderness over the dorsum of the foot, in the calf and in the muscles of the thigh. The sciatic nerve is, however, free from any tenderness. Pulsation is absent in the right posterior tibial artery, although it is distinctly felt on the other side. Both arterior tibial vessels are distinctly felt at the ankle.

The lungs present evidence of slight emphysema, but are otherwise normal. The cardiac impulse is felt just within the nipple, and on sitting up there is a distinct thrill. Dullness is within the normal limits; both sounds are heard at the apex, the first being loud and thumping. There is a rumbling presystolic murmur heard over an area two inches in diameter at the apex. Pulmonary accentuation is slightly

marked. The arteries are not thickened or tortuous, and are just palpable at the wrist, and the pulse is easily compressed and of fair volume.

Pain and tenderness gradually disappeared from above down, and a fortnight after admission there was only slight tenderness in the sole. The redness and swelling disappeared about the same time.

In this case the sudden onset of pain, with absence of pulsation in the posterior tibial artery, in a patient with mitral stenosis, fairly warrants the diagnosis of embolism. The diffuse character of both pain and tenderness in the limb seem remarkable, and formed a somewhat puzzling feature in the diagnosis.

Another feature of interest in this case was the long period of latent cardiac disease. If we assume, as we fairly may, that the cardiac lesion began with the attack of acute rheumatism at 21, we find a latent period of fifty years.

In a case of malignant endocarditis which I reported to the Society (Montreal Med. Journ.), Dr. McCrae confirmed the diagnosis of embolism of the posterior tibial artery, by dissecting out the vessel. In this case the pain and tenderness were much less marked and were confined to the foot.

Case 2. Rheumatic heart disease with pulmonary infarction as the first symptom. Venous Thrombosis.

Mary C., aet. 39, was admitted on Jan. 13th, for pain in the right side, cough and dyspnœa. She has had two attacks of acute rheumatism, at 14 and at 24. The second attack involved principally the hands and feet, and has left a deformity in the hands. Up to the present illness she has enjoyed good health, and has had no cardiac symptoms. On Dec. 24th, 1902, she began to cough and became somewhat short of breath. Two days later severe pain came on in the right side of the chest, accompanied by spitting of blood and severe dyspnœa. She took to bed, and since then has suffered from orthopnœa, almost incessant cough, and slight swelling of the lower extremities. There was diarrhœa for the first few days and subsequently constipation.

Examination reveals a rather poorly nourished woman, with slight œdema of the lower extremities, and cyanosis of the lips and cheeks.

Both hands are greatly deformed, the phalanges being flexed at the first and extended at the two terminal joints. There is marked ulnar deflection of the fingers; the little finger is almost at a right angle to its metacarpal bone, and the phalanx articulates with its lateral surface. The metacarpo-phalangeal joints are unduly mobile, but there

are no bony deformities. There is a subcutaneous fibroid nodule above the left elbow.

The respirations are 42, laboured, and accompanied with dilatation of the alæ nasi. She lies on her back, but asks to be propped up. There is a rough friction in the lower right axilla with a catching pain, and at the right base there are two finger breadths of dullness. She coughs a great deal, and expectorates a good deal of mucus, tinged with a little bright blood.

The apex impluse is outside the nipple and diffuse, there is no thrill. Dullness laterally extends 1 ½ inches to the right and 4 inches to the left of the median line. There is a faint systolic murmur at the apex and both sounds are clearly heard. In the fourth interspace, three inches from the median line, over an area covered by the end of the stethoscope is a harsh presystolic murmur, a booming first sound, and reduplicated second sound. Along the lower left sternal border is a soft diastolic murmur. There is no pulmonary accentuation. The pulse is small, soft and compressible, 140. The liver dulness extends one finger's breadth below the costal border, but its border is not palpable.

The urine is acid, S.G. 1018, a small amount of albumen, and a few granular and hyaline casts. The temperature is 100.

Jan. 20. Under the influence of stropanthus and rest the pulse became slower, and its quality larger and somewhat collapsing, whilst the dyspnœa lessened.

Jan. 22. The right hand and arm became œdematous and swollen, to-day the swelling beginning sharply three inches below the fold of the axilla. Over the clavicle there is distinct fulness, but no tenderness. The pulse 78, very irregular and occurring in threes. Stropanthus stopped.

Jan. 25. Swelling in the right hand and arm have much diminished, œdema being limited to the elbow.

Jan. 30. Pain in left side of chest for some days past. A loud pleuritic friction in the left lower axilla, much cough and some bloody expectoration (infarction). An erythematous papular rash over the left wrist. Both arms œdematous at the elbows.

Feb. 9. Much œdema over the right foot, very slight on the left.

Feb. 18. Twelve oz. of fluid removed from the left pleura, slightly turbid and containing a few polynuclear leucocytes.

Feb. 21. A noisy delirium has developed with restlessness and Cheyne-Stokes breathing. This continued to the time of her death, with occasional severe headache and vomiting on a few occasions, also incontinence of urine and fæces, and free sweating. The urine con-

stantly contained albumen, as much as three grams of albumen to the litre, S. G. 1010 to 1024, and a few granular and hyaline casts. The quantity was much diminished, being usually under fifteen oz. daily.

Feb. 26. A large indurated and hæmorrhagic patch developed over the right side of the neck, extending from below the clavicle backwards to the supraspinous region, the pulse became small and rapid, marked cyanosis set in, and death occurred on the following day.

Diagnosis. Chronic rheumatic endocarditis with mitral insufficiency and stenosis, and aortic incompetence. Pulmonary infarction. Chronic nephritis. Arthritis deformans.

Anatomical diagnosis furnished by Dr. McCrae, who performed the autopsy. Acute verrucose aortic and mitral endocarditis. Chronic sclerotic aortic, mitral and tricospid endocarditis. Tricuspid and mitral stenosis. Aortic incompetence. Dilatation and hypertrophy of the heart. Adhesions of the pericardium with calcareous plates. Right hydrothorax. Collapse and infarction of the lungs. Chronic muco-purulent bronchitis. Cirrhosis of the liver. Induration, with parenchymatous degeneration of renal epithelium, and slight cirrhotic changes of the Malpigian tufts. Thrombosis of the right jugular, femoral and iliac veins.

The cause of the unilateral œdema of the arm, and later of the leg, both on the right side, was somewhat obscure. It was regarded at its first occurrence as a venous thrombosis, but the absence of any cord in the veins, and of tenderness, rendered this view somewhat doubtful. The great preponderance of venous thrombosis on the left side also threw some doubt on this view. In the cases reported by Welch (Trans. Am. Phys., Vol. 15), 22 out of 24 cases were on the left side.

The marked delirium, restlessness and incontinence, occuring after considerable improvement in the cardiac condition, was attributed to uræmia.

Although, judging from the history of acute rheumatism, the patient must have suffered from serious cardiac disease for at least 15 years and probably for 25 years, no symptoms were present until the onset of pulmonary infarction, producing a fatal cardiac break-down, and not as is usually the case, occuring as a late symptom after definite cardiac symptoms have been present for a longer or shorter time.

Deformity of the hands, as a result of acute rheumatism must be a decidedly rare event. In this case the deformity resembled rheumatoid arthritis in the ulnar deflection of the fingers, but differed from it in the mobility of the joints, the absence of bony enlargements, and in not having a progressive character.

CASE REPORTS.*

BY

GEO. H. MATHEWSON, B.A., M.D.

1. Aphonia due to the Presence of a Foreign Body in the External Auditory Meatus.

In February, 1898, a healthy looking young man of nineteen years of age consulted me on account of extreme hoarseness and deafness. He was so hoarse that he could scarcely whisper, and stated that he had suddenly become deaf, and at the same time lost the use of his voice. I thought the condition might be due to luetic infection, so looked into the mouth and œsophagus, but could see nothing beyond a little congestion of the mucous membrane. (I regret in the light of the after history of the case, that I did not examine the larynx). I then examined the ears and found the meatus nearly filled with cerumen, while the other contained a smaller amount of the same material.

A large plug of hard cerumen was removed by syringing from the more completely filled ear, and fixed to the inner end of the plug was a large piece of the lead from a carpenter's pencil. The proximal end of the piece of lead was free and presented many sharp angles.

Immediately after the removal of the body the patient recovered the use of his voice, and after the second ear had been cleansed the hearing also was restored. The patient remembered having got the lead into the ears many years previously. Apparently we have here an irritation which produced spasm of the abductors of the vocal cords, instead of cough or some of the more usual results.

I suppose the foreign body either impinged directly on the filaments of Arnold's nerve in the meatus, or forced the membrana tympani inwards, and pressed through it against the promotory, where Jacobsen's nerve forms the tympanic plexus; the exact route of the reflex I leave to the physiologists and anatomists.

2. Keratosis Obturans or Laminated Epethelial Plug.

A moderate amount of lamination in masses of inspissated cerumen is very common, but it is rare to find it so marked as in the following case:—

In December, 1899, I was called by the family doctor to see a little girl of 13 years of age, who was complaining of extreme pain in the

* Read before the Montreal Medico-Chirurgical Society.

right ear. The meatus was found to be filled with a brown mass looking like inspissated cerumen. After attempting to dislodge the mass by syringing and the gentle use of curettes and forceps, for some time with indifferent success, it was finally found necessary to anæsthetize the child, and even then it was only by pretty forcible use of the curette and forceps that the plug was removed. On examining the material it was found to consist of a series of conical casts of the meatus lying tightly packed one within the other, with the apices of the cones directed toward the tympanic membrane. When water was forced into this mass, the outer ends of these cones spread open and filled the meatus fuller than ever.

3. Aspergillus Nigracans, with Specimens.

As the occurrence of moulds in the external auditory meatus is not very common in Canada, I venture to present the following case:—

A gentlemen came to me last summer complaining of a slight discharge from the left ear.

On examining the meatus a blackish-brown mass was seen to cover the membrana tympani. On removing some of this material, it was found to be a mould of some sort, and the microscope showed it to be aspergillus nigricans. After careful removal, spirit drops were applied to the site of the growth. A specimen is under the microscope at the other end of the room.

4. Tinnitus Due to Ingrowing Hair.

A medical man consulted me a short time ago on account of a peculiar creaking noise in his right ear, especially noticeable when he moved his jaw in speaking or eating. On carefully examining the ear, a very stout hair was found to have grown inwards from about the middle of the meatus, until it had reached the membrana tympani and scratched against the latter, when the jaw movement was transmitted to the integument of the meatus. The symptoms disappeared promptly on pulling out the hair.

RETROSPECT

OF

CURRENT LITERATURE.

Surgery.

UNDER THE CHARGE OF GEORGE E. ARMSTRONG.

Harvey Cushing, Associate in Surgery, Johns Hopkins Hospital. On the Avoidance of Shock in Major Amputations by Cocainization of Large Nerve-Trunks, Preliminary to Their Division. With Observations on Blood-Pressure Changes in Surgical Cases *Annals of Surgery*, Vol. XXXVI, No. 3, 1902.

In this interesting article Harvey Cushing pleads for the cocainization of large nerve-trunks previous to their division during major amputations, under general narcosis, as a means of preventing possible shock. He begins by defining "Shock." It is a "peculiar state of depression of the normal activities of the central nervous system, brought about ordinarily by traumatism, of one sort or another, to peripheral afferent nerves." In order to produce shock "the impulses resulting from this traumatism must have acted reflexly upon the vaso-motor mechanism in the medulla in such a way as to cause a marked fall in blood-pressure. This diminution of arterial tension is the most characteristic symptom of shock."

In the next place it is well known that when extensive injuries are complicated by anæmia, primary or secondary, or by great loss of blood; or when anæsthesia is unduly prolonged, operative shock is especially prone to develop. In such cases Cushing seems to lay the blame largely upon the added insult to the nervous system occasioned by the cutting of the large sensory nerve-trunks. This he proposes to prevent by injecting cocaine into these nerves previous to dividing them, since Crile has shown that this procedure effectually blocks the transmission of all afferent impulses travelling by that nerve. In illustration he reports two cases of interscapulo-thoracic amputation for sarcoma. In the first, the pulse which had been steady at 110 for some time, suddenly shot up to 150 upon division of the brachial plexus, and remained at that level for 50 minutes. Upon a second division of the

plexus higher up in the neck, where it was stretched out over a secondary growth, the pulse suddenly became impalpable. It continued thready and almost imperceptible for nearly 24 hours; and during this period the general condition closely resembled that seen in cases of shock such as accompanies serious traumatic crushes of an extremity.

In the second case the plexus was cocainized previous to division, and no evidence of shock appeared. Cushing refrains from pushing home his argument on the basis of two cases, and admits the possibility of individual physiological variation to identical stimuli; yet believes that the cases did stand sufficiently "on the same physiological level" to give point to the moral he wishes to convey. He adduces confirmatory evidence of a negative order in the regular absence of shock during an even more extensive operation, that of Halsted for breast cancer; in which, namely, no large sensory trunks are divided.

Naturally, amputations in which the main nerve trunks are to be cocainized, must be done by the careful dry dissecting method; and Cushing takes the opportunity of putting out of existence—with a somewhat Podsnappian wave of the arm—the "time-honoured methods" of amputating with tourniquet and long knives, "relics of the days of spectacular surgery." If one is to apply the tourniquet at all, it would be more rational, he believes, to apply it distal to the site of operation in order to prevent loss of blood into the limb about to be amputated.

In the continuation of his article the author mentions a convenient apparatus for estimating blood-pressure, adapted from that described by Riva-Rocci, which has lately been put in use in the Johns Hopkins Hospital. This instrument enables the anæsthetist to keep an accurate record of the blood-pressure during anæsthesia; and the warnings of impending shock afforded by a rapidly sinking blood-pressure has, Cushing is convinced, saved life in a number of instances. Certainly such an innovation can be greeted with nothing but unstinted praise.

Several specimen charts, giving a parallel view of the pulse-rate, and the blood-pressure are reproduced from the collection of Dr. Briggs, and are very instructive. They represent three classes of major operation—cerebral, abdominal and peripheral. One shows the depressor effect brought about during a laparotomy for tuberculous peritonitis by exposure and handling of the viscera. A second shows the normal rise in blood-pressure following compression of the brain during the Gasserian ganglion operation, also the fall in pressure associated with clamping of the ganglion and its extraction. A third shows very graphically the extreme and sudden fall of blood-pressure, ending fatally from shock, in a second ganglion operation.

Cushing notes, by the way, that in his latest ganglion operations, he has carried out his principle of cocainization of the ganglion before its manipulation and extraction. Another chart shows a rise in blood-pressure during stretching of the sciatic nerve; and still another shows abscence of any change of pressure in an extensive breast operation.

The article closes with a resume of modern ideas concerning the physiology of the question; in what way and under what circumstances stimulation or injury of a periphereal sensory nerve produces a pressor response, i.e., a rise in blood pressure; and in what a depressor response, or fall in blood-pressure. Unanimity on these points is not yet attained. "Yet so much is certain, that injuries of most diverse nature to peripheral nerves may, especially in some physical states, produce reflexly a fall in blood pressure; that this loss of vascular tone when it endures, is the most characteristic feature of shock; and that local anæsthetization of a nerve trunk will block the transmission of the centripetal impluses which otherwise might bring about the reflex loss of vascular tone."

If the reviewer be allowed to express one or two thoughts as to Cushing's conclusions, he would say that Cushing appears to attach an exaggerated importance to the reflex shock-producing effect of cutting the large nerves in amputations. Certainly the cases must be few where such division of nerves in a healthy subject can be accused of producing shock. In cases of severe accident purely psychical impressions, in the nature of fright or terror, play certainly a considerable role in shock-production. In any case, those dead of fright show nothing more than the pathological lesion which is considered to be the immediate cause of shock, viz., an excessive determination of blood to the splanchnic area. In anæmic cases, in such as have already undergone prolonged anæsthesia, or in severe crushes with shock; yet it is just in such cases that rapid operation and a minimum of anæsthetic are desirable; and neither of these is attainable if the slow dissecting method of amputation and of cocainization during general narcosis, recommended by Cushing, is to be carried out. In short, for cases in good condition, (e.g. amputation for tumor), cocainization of large nerves, during general narcosis seems unnecessary; for cases in bad condition undesirable.

There remains a class of cases, in which extensive operations under prolonged anæsthesia must be done by the slow dissecting method; and the Berger operations, cited by the author, are a fair type of such. It would seem that in such cases Cushing's proposal marks a decided advance. In operations which had already lasted over an hour (as

was the case in the two reported) upon individuals worn out by long sleeplessness and pain, it is easily conceivable that the normal pressor response following the cutting of large nerve-trunks should be replaced by a depressor response with its fall in blood-pressure and consequent danger of shock. The cocainization of these nerves before division would no doubt assist in preventing this danger.

Like all that Harvey Cushing writes, the article is decidedly suggestive and stimulating, and contains many subsidiary ideas relating to the subject of shock and blood pressure during operation, which render its perusal very much worth while.

Jones, Robert, F.R.C.S. Edin., Liverpool. An Address on certain Principles and Methods in the Surgery of the Paralyses of Children, *Lancet*, Feby. 14th, 1903.

The author here gives us, in a somewhat general way, those broad outlines of prognosis and treatment in the paralytic deformities of children which a lengthy experience has taught him. He discusses first the principles upon which prognosis should be based in cases of deformity arising from acute infantile paralysis. The sequence of reasoning is in brief as follows: Deformity in these cases is produced primarily, more by the effect of gravity, body-weight, and the shape of articular facets than by unbalanced muscular action. Because certain groups of muscles have barely responded to stimuli, and have remained inactive, it is too often assumed that this is due to cell destruction in the motor area;—an assumption which, if correct, would render useless any effort on the part of surgery. What we have to recollect, however, is that the cell-destruction is not so extensive as would appear; and that the affection, in so far as the majority of the cells are concerned, is a transient and recoverable one. . Take, for example, paralytic wrist-drop. The whole arm perhaps in such a case was paralyzed to begin with; then the strong group of flexors recovered; later the extensors. The flexors, however, having first got well, overpowered the extensors, and, aided by gravity, became shortened or contracted, while the extensors were stretched out and lengthened. there followed prolonged disability. Why? Because a group of muscles placed and kept at mechanical disadvantage, had become impotent from desuetude, not (at least in many cases), from permanent paralysis. "There are thousands with crippled, useless hands, who have received neither hope nor help from whomsoever they may have consulted; and yet the majority of such deformities are most amenable to treatment." The great error has lain in mistaking muscles powerless from desuetude for muscles paralyzed from cell destruction.

How is one to distinguish these practically, and thus be able to give a confident prognosis?

"The test is simple. The surgeon asks the patient to move his fingers in the direction of extension. The patient says he cannot. The surgeon then grasps his wrist, and still further forcibly flexes it. The patient is then asked to extend his fingers from their new position. If he succeeds ever so little, a favorable prognosis may be given. Should he fail then treatment is of no avail."

"The treatment is based upon Thomas's theory of muscle shortening, and consists in a recognition of the mechanical principles governing the production of contractures. In the paralytic wrist one group of muscles is lengthened and another is shortened as the result of posture (the weight of the hand in pronation causing wrist-drop); and treatment must be directed to the reversal of these conditions. In other words we must slowly stretch and lengthen the flexors, and place the extensors in such a position that their structural shortening will ensue—give them an opportunity, that is, to take in their slack."

Mr. Jones does not go into the details of methods; but his simple statement that the wrist and fingers must be placed for many months in hyperextension, renders this principle of treatment (which he says has received but scant allegiance), easily comprehensible. The same principle, thus applied to wrist-drop governs the treatment of other deformities. The severity of the contractures and the duration of the disability, do not contra-indicate a favorable prognosis. In two cases, reported briefly, the onset of the paralysis is dated back, in one, 17 years, in the other 20 years; and the disability and contraction were extreme; yet the prognosis was confident and the result brilliant in both.

The author then goes on to resume his experience with tendon-transplantation, gathered from a series of over 50 cases. His "dont's" are especially interesting: "In analyzing my failures I ascribe perhaps the principal share to a want of success in preventing the reinforcing tendon from taking a tortuous route." Another cause of failure lies in "neglecting to completely correct—or better, even over-correct—a deformity before transplantation is performed." Again, "the operation should not be performed with the object of strengthening partially paralyzed muscles or muscles weakened by elongation. In such cases our opportunity comes of testing the value of what I have stated regarding the mechanism of shortened muscles. If any operation be called for, lengthening of the shortened tendons, and shortening of the lengthened ones, are chiefly indicated." Again, "in flail-like joints, tendon-splicing is of no avail, because superincumbent body-weight is

too fatal an antagonist." And the author is convinced that "wherever possible the tendon should be transplanted into periosteum."

He then proceeds to discuss the operation of arthrodesis, the revival and extension of which he had urged as far back as 1894. This operation he advocates strongly in paralytic patients whose joints are either hopelessly flail-like, or sufficiently so as to demand increasing mechanical attention. The advantage to be gained is tersely put: "Arthrodesis aims at transforming a flail limb into a member as rigid as the splint which it is desired to discard." In a large number of these cases the psoas and iliacus are the only muscles of progression left unaffected; and if these are asked to carry a heavy splint as well as the weight of the limb itself, they soon tire, and the patients thus lose the opportunity which presents to attain strength sufficient for progression. The operation consists in peeling the cartilage off the whole joint with a gouge. In the knee, the bone too must be gouged. In a series of 100 cases every wound but three healed *per primam*, and, "contrary to expectation, those cases where trophic changes were most marked healed as readily as those whose nutritive conditions were nearer normal." In the ankle, he has lately practiced removing the upper half of the astragalus together with the internal malleolus, in order that the tibia may fall with greater stability on a good square surface.

The address concludes with a discussion of the cerebral paralysis of the spastic type. The reviewer, however, must refer those interested, to the original, since here the matter is too concentrated for any extract to give it justice. Suffice it to say that Mr. Jones is convinced "that a large proportion of children suffering from severe spastic paralysis may be transformed into useful members of the community, improved both in body and mind by surgical efforts, enabled to walk with comparatively little deformity, and generally only requiring the aid to be derived from one or two sticks." Nevertheless, the necessity of careful selection of cases is imperative, and "operations not followed up by careful and prolonged after-care give rise to disappointment and discredit. Merely dividing tendons, and trusting to massage and electricity, is futile and discouraging."

Edward Archibald.

Gynaecology.

UNDER THE CHARGE OF WILLIAM GARDNER.

Uterine Displacements.

DAVENPORT, F. H. "Retro-displacements of the Uterus. Non-Operative Treatment." *American Gynæcology*, July, 1902.

The treatment of this condition by means of pessaries is the only method which can be advocated, but others must receive some consideration. For instance, massage has many advocates but its methods are difficult to learn, the results are uncertain and slow and the prolonged manipulation of the parts is extremely objectionable. Again when retroversion accompanies neurasthenia some say that nerve tonics will relieve the condition, but other than a symptomatic cure is impossible of attainment by this means. The permanent effect of electricity is doubtful.

As surgical technique advanced pessaries were employed less, although twenty-five years ago they were the only method used. This neglect of the pessary has gone too far, as this instrument undoubtedly has its uses in properly selected cases. The pessary is indicated where,

1st. The retroverted uterus is the sole pathological factor; where the organ is not enlarged or prolapsed.

2nd. Where retroversion follows each labour and retards recovery.

3rd. Where the faulty position is the result, not the cause, of a general break-down in health.

The Alexander Operation.

CLEVELAND CLEMENT. "The Alexander Operation," *American Gynæcology*, July, 1902.

In properly selected cases, this is the operation for retro-displacements of the uterus and even anterior displacements of this organ will often be benefitted by it. The process of selection, however, should be carried out with the greatest care and the operation ought only to be advised in patients where the uterus is perfectly mobile and can be replaced and retained in place by a pessary. Indeed, it is well not to perform the Alexander Operation until the uterus has been replaced and the patient worn a pessary with comfort for some time. Even after operation this instrument should be used for several months.

The Advantages, Disadvantages and Results of Suspension of the Uterus.

ROBB, HUNTER, M.D. "The Advantages, Disadvantages and Results of Suspension of the Uterus." *American Gynæcology*, August, 1902.

The term "suspension of the uterus" does not include any operation by which the uterus is fixed to the anterior abdominal wall, but means the method of holding the uterus forward in mobile equilibrium by intra-abdominal pressure and a false ligament. It may be done where,

1st, the uterus is displaced and causes symptoms without the presence of any complications;

2nd, where the displacement is the chief cause of symptoms, although complications are present, and

3rd, where other conditions call for an abdominal section and the suspension is simply a supplementary measure.

The review of over two hundred cases of this operation shows it to be the best method which we at present possess of dealing with obstinate displacements.

Heart Disease and Fibroids.

DORAN, ALBAN. "Fibroids, Heart Disease, Syncope and Pulse." *Journ. of Obstet. & Gynæcol. of the British Empire*, Jan., 1903.

Wilson of Birmingham noted three cases of heart disease accompanying uterine fibroids and quoted Spiegelberg & Money as having observed a special form of enlargement of the heart in cases of pregnancy. Here the size of the heart diminished after labour, but as the pelvic disease steadily increases rather than diminshes, cardiac disease tends to become serious when complicating fibroids of the uterus. One of Wilson's patients having died from perforation of a duodenal ulcer, the heart was found to be dilated as a result of hypertrophy with fatty and fibroid degeneration. He goes on to show that venous thrombosis is especially liable to occur where fibroids and heart disease are synchronous, in which case also the administration of ergot is inadvisable.

Sudden deaths after the removal of large fibroids have frequently been traced to cardiac disease, but many such fatalities are rather due to the relief of intra-abdominal pressure by removal of the large mass than to an actual diseased condition of the heart. To counteract heart failure in these cases sparteine or strychnine may be used with benefit, especially the former.

Haemorrhage is not necessary in order to have circulatory disturbances. One patient was seen who had a large fibroid and whose monthly periods lasted for a week, but were not excessive, although she

had suffered from frequent fainting attacks during the two years previous to operation; these attacks fail to return after the removal of the fibroid as well as both ovaries.

One may conclude that operation is not contraindicated by syncopal attacks or irregular pulse. Where there is no failure of compensation, common vavular diseases of the heart do not militate against myomectomy or hysterectomy but may be rather benefitted than otherwise by the operation. But the presence of chronic Bright's disease with a dilated heart greatly increases the gravity of any extensive surgical interference.

A Case of Transplanted Uterine Fibroid giving rise to Intestinal Obstruction.

PATON, E. P. "A Case of Transplanted Uterine Fibroid Giving Rise to Intestinal Obstruction." *British Medical Journal*, Jan. 17th, 1903.

The patient was a single woman, 48 years of age. Two weeks before admission to hospital she was seized with abdominal pain, vomiting and constipation. Purgatives were given but with a negative result and four days later the vomited material became fæcal in character. This vomiting continued, the abdominal distension increased and the patient showed signs of collapse. She had suffered from myxœdema for four years, for which she had taken thyroid extract. In October, 1901, she had an attack similar to the present, but not so severe. Since then her health had been poor and she had lost some strength. There was no history of uterine disease.

When first seen she had the usual signs and symptoms of acute intestinal obstruction, but the abdomen, although distended, was not very tense. On the right side was a tumour which extended from the groin almost up to the umbilicus. It was oval, hard, mobile and gave no evidence of pelvic attachment. Rectal examination revealed the presence of several small fibroids in the uterus but no connection between that organ and the tumor could be discovered. On opening the abdomen the tumor was found to be too densely adherent to the coils of the small intestine to be removed. The patient died a few hours later and at the necropsy the tumor was seen to be a fibroid of the uterus. The tumor had originally been attached to the posterior surface of the uterus by a thin pedicle which had ruptured, allowing the mass freedom to become attached to the coils of the bowel.

Urinary Function and Ovarian Tumour.

PITTS, BERNARD. "Suppression of Urine in a Case of Ovarian Tumor." *British Medical Journal*, Jan. 17th, 1903.

Three years before Mr. Pitts saw this patient she first noticed the

presence of a tumor in the abdomen. When she presented herself finally for examination she was found to be pregnant and was suffering from a hard fluctuating ovarian tumor. The urine had become albuminous and so scanty that but one ounce was secreted in the twenty-four hours. Uræmic symptoms supervened and complete anuria for sixteen hours followed. On removal of a large multilocular cyst of the ovary, the greater part of which was solid, a free secretion of urine together with complete recovery took place.

F. A. L. Lockhart.

Ophthalmology.

UNDER THE CHARGE OF FRANK BULLER

Toxic Amblyopia.

F. Schieck. "Toxic Amblyopia." *Graefe's Archiv. Band. LIV., Heft. 3, 1902.*

Schieck publishes the results of his clinical and pathological investigations in a case of recent toxic amblyopia. He found active connective tissue proliferation, new septa sprouting from the preexisting septa of the optic nerve, dividing the funiculi up into smaller bundles, but nowhere compressing the nerve fibres, as they merely projected into spaces left by degenerated nerve fibres. In these septa numerous vessels developed. The walls of the original vessels as well as many of these branches were markedly atheromatous and in many cases the lumen was obliterated. In the macula fibre bundles, were many spaces and clefts left by degenerated fibres. Schieck considers the vascular changes to be the primary cause of the disease, these changes being due to toxic action of the alcohol or tobacco. With the blocking of the vessels the nutritive supply is shut off and degeneration of the nerve fibres ensues.

The macula bundle shortly after its entry at the optic disc runs through the centre of the nerve, a most unfavourable position from a nutritive standpoint, for whereas the peripheral fibres of the nerve are next the intervaginal space, they are bathed by the lymph in this space and can hence resist the diminution of the vascular supply, while the more centrally placed fibres soon degenerate. The new vessel formation in the septa is simply a collateral circulation, the connective tissue being its carrier, bringing blood to the assistance of the degenerating fibres. If the toxic cause is withdrawn regeneration or recovery of function may occur, but if the alcohol or tobacco is persisted in, these vessels degenerate, and atrophy of the nerve fibres ensues. The existence of the central scotoma can thus be readily explained.

Infection from the Conjunctival Sac.

Roemer. *Transactions of the Hessian Society of Natural Science and Medicine, Vol. 31, 1902.*

Roemer's experiments are worthy of note. He shows that in animals whose lachrymal ducts have been ligated or destroyed, the

intact conjunctiva is impermeable for pyogenic organisms. Only when germs enter the nose does infection occur. Experiments with anthrax, septicæmia of mice, chicken cholera, Fränkel and Weichselbaum's diplococci proved, that with patent tear ducts, the conjunctival sac forms an extraordinarily favourable entrance for micro-organisms into the lymphatics. This mode of infection merits attention in the genesis of cerebro-spinal meningitis.

Dionin.

Darier. *La Clinique Opthalmologique, Jan. 10, 1902.*

Terson. *Ibid., May, 1902.*

Winjenroth. *Ibid., June 25, 1902.*

Luniewski. *Die Heilkunde, 1902.*

Gottschalk. *Wochenschrift f. Therapie und Hygiene des Auges. No. 48, 1902.*

F. R. von Arlt. *Ibid., No. 35, 1902.*

A good deal of attention has been drawn to the therapeutic action of dionin in ocular lesions during the past year. It is a derivative of morphine acting both centrally and locally. Introduced subconjunctivally it acts as a sedative through the periocular lymph spaces, this effect not being produced by its absorption elsewhere.

Locally in the eye it is an antiseptic, analgesic and lymphagogue. To the derivative action as a lymphagogue, is due its power upon inflammatory conditions, and in hastening the absorption of the post-inflammatory debris of cataract. Darier employs dionin to allay pain where local anæsthetics fail, also to hasten absorption of pupillary exudates and to favour mydriasis. The strength of the solution used is two per cent.

Terson employs it in temporal injections to allay pain in ocular affections. One centrigram of a one-half to one per cent. solution is sufficient. The analgesic action is more lasting than that of morphine, and is not accompanied by the unpleasant effects of the morphine.

Wingenroth reports favourably on the antiseptic action of dionin in a case of conjunctival blenorrhœa. He instilled a solution of one part of cyanide of mercury and twenty parts of dionin to a thousand parts of water, six times daily, producing a cure in three days. The blenorrhœa was due to a mixed infection of staphylococci, streptococci and pneumococci, and other methods of treatment had failed.

Luniewski considers dionin as indicated when it is desired to bring about a quick absorption of inflammatory products or serous exudates, and also when prolonged anæsthesia of the eye is desired. It is contra-

indicated in old people with arterio-sclerosis. It has a very favourable action in detached retina due to serous effusion.

Gottschalk reports favourably on its action in retrobulbar neuritis, considering the results as due. to the stimulation of the lymph circulation. The dionin was employed as an instillation of two per cent. strength.

Von Arlt employed dionin in pannus scars after trachoma, applying it twice weekly, five milligrams of the drug being put into the lower conjunctival sac and gentle massage kept up for several minutes. There was very marked success in two cases.

Absence of the Visual System in an Adult.

W. G. Spiller. "Absence of the Visual System in an Adult." *Brain. 1902, page 631.*

The patient was a helpless idiot regarded as a case of cerebral spastic paraplegia of the lower limbs with absence of the eyeballs. The palpebral fissures were very small and the orbits contained only a small amount of fibrous tissue. The optic foramina were nonexistent, merely slight depressions occupying their site in the skull. There was no sign of optic nerves, chiasm or tracts, nor was there any external geniculate body on either side. The thalamus had nothing resembling an optic tract passing from it, and the posterior part of each thalamus was rounded and larger possibly than one would expect to find in such a case of ageneisis of the visual system.

The following are Spiller's conclusions:—

(1) The chief primary optic centre is in the external geniculate body.

(2) The prelocinas is also an important primary optic centre.

(3) The anterior canaliculus of the quadrigeminal body in man bears an important relation to vision.

(4) The subthalmic body, the habendula and the geniculate body are probably not part of the visual system.

(5) The cortex of the calcarine fissure may contain nearly the normal number of cell bodies, even though the visual system be absent.

(6) The nerves of the ocular muscles and their nuclei may be developed, even though the visual system may be absent.

(7) Congenital spastic paraplegia may be the result of deficient formation as regards number or size of the neurones of the central motor system, even though such a deficiency may be difficult to detect with the microscope.

J. W. Stirling.

Society Proceedings.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

Stated Meeting, February 20, 1903.

H. S. Birkett, M.D., President, in the Chair.

A Case of Hour Glass Contraction of the Stomach.

Dr. J. M. Elder reported this case, which he considered of more than usual interest, on account of his having been able to make a diagnosis before operation. Twelve years previously, he had treated the same patient for severe gastric hæmorrhage from ulceration of the stomach. Five years later an attack of indigestion was relieved by lavage with the stomach tube, and the patient continued to make use of daily lavage passing the tube herself for a year. From that time she had no symptoms until two months before her entrance into hospital she began to occasionally notice a swelling on the left side of the upper part of the abdomen under the left rectus muscle and when the swelling appeared there was always great pain. Three weeks previous to admission, after a hard day's work, she was seized with severe pain in the region of the stomach and vomited, and from that time until admission to hospital she could take nothing but milk and soda water without vomiting. On examination after one of these attacks of pain the abdomen was found tympanitic, but there was nothing to indicate inflammation. The case was watched for a week, the swelling appearing and disappearing. There was considerable emaciation, weight 90½ pounds. The diagnosis had been indicated by experience with a previous case in which there was a similar history and operation had shown instead of the expected cancer an hour glass stomach. Then on passing a stomach tube and dilating the organ with air, it was seen to assume a U shape.

The operation had disclosed a cicatricial contraction dividing the stomach, the pyloric being the larger end. At the upper end of the scar tissue was a mass of tissue just above the lesser omentum and feeling like a hardened gland. Pathological report on a small piece of this excised proved it to be fibrosed pancreas. The old ulcer had been on the posterior wall of the stomach and as it cicatrized, it had involved a portion of the pancreas as well. The pyloric orifice was found normal and several long adhesive bands between the stomach

and liver were divided. The stomach itself appeared healthy. A gastroplasty was performed and the wound closed by Lembert sutures. The after treatment gave little trouble, first rectal and then mouth feeding on the third day. She left the hospital on the 22nd day after her admission, having gained 9½ pounds since the operation. Seen again on February 5th, she was found well nourished and weighing 110 pounds.

Dr. Armstrong considered this a very satisfactory field of surgery, but doubtful if the diagnosis could always be made from the symptoms named by Dr. Elder. In the absence of a mass, one would merely be able to diagnose an obstructive condition with dilatation, which might be due to many things. The method of operation pursued by Dr. Elder was the most simple and satisfactory in his case, but he fancied that adhesions might prevent its adoption in others.

Some Complications of Mitral Stenosis.

Dr. Finley reported two cases, the full report of which is published at page 276.

Dr. Hamilton said that Dr. Finley's two cases suggested two ways in which embolism or blocking of an artery might occur. He would like to know his views concerning the occurrence of the infarct in the lung and how one could contrast these two, in the tibial and pulmonary arteries, also what kind of fluid was withdrawn from the pleural cavity. It was stated on the highest authority that the character of the sputum in these cases was characteristic, that it differed altogether from pneumonic sputum, in that it was black.

Dr. Finley, in reply, said that there seemed to be a divergence of opinion about the origin of pulmonary infarcts, but one was that they really were emboli of the lung and the embolus was derived from a plug of fibrin carried from the right heart. He had not seen the sputum in the early stages, but the patient had stated that she spat up blood, and when she came into hospital she spat a good deal of mucus tinged with bright blood. The fluid withdrawn from the pleura was clear and on centrifuligisation a few cells were obtained, which proved on staining to be chiefly polynuclear leucocytes.

Exogenous Ulceration of the Intestines.

Dr. Adami read a paper with the above title.

Dr. Armstrong was much interested in the paper, which must throw a good deal of light on such conditions. He had been trying to recall similar cases, but had been unable to do so. He knew one medical man who had passed fæces and gas through the urethra, and there was Flint's case of a soldier who went through the American war dis-

charging fæces and gas through the urethra and at the autopsy the appendix was found attached to the bladder.

Dr. Lapthorn Smith said that in pelvic surgery there were many cases in which a pus tube ulcerated through into the bowel or bladder and that might perhaps be classed as exogenous ulceration.

Relative Aortic Incompetency.

Dr. W. F. Hamilton and Dr. J. R. Byers communicated this paper.

Dr. Adami said that in the first case alluded to by Dr. Hamilton, there was a point which he had not pointed out, namely, the comparison between the size of the pulmonary and aortic rings. While the pulmonary was of normal size, the aortic was very large and gave a good idea of the conditions which led to incompetence of the valve, by stretching of the orifice. He would like to ask whether, in the second case, there was distinct evidence of giving way of the upper part of the ventricle through softening.

Dr. Hamilton, in reply, stated that there was no positive evidence of giving way of that portion of the auriculo-ventricular ring, or of the muscle which encircled the lower first portion of the aorta and went over the auricle into the ventricle, as MacCallum had pointed out. His conclusions had been rather by inference than observation. The heart was exceedingly flabby, light coloured and fatty, and he had concluded that it was muscular rather than vascular dilatation.

H. S. Birkett, M.D., President, in the Chair.

Stated Meeting, March 6, 1903.

Drs. W. C. Mills and Philip Burnett of Montreal were elected Resident Members of the Society.

Tumour of the Cerebellum.

Dr. D. A. Shirres exhibited this specimen, the brain of a child six years of age, who had been brought to Dr. Evans in November last, with a complaint of gastric disturbance and more or less constant vomiting. There had been no evidence of a cerebral condition, except that the patient on walking, exhibited a tendency to limp. Dr. Fry on examination found a marked neuritis in the eyes, and the patient was then seen by the speaker, who made out the following condition on examination. There was distinct weakness of the left side, with increased knee jerks, ankle clonus, Babinski's sign, etc., and he had diagnosed probable cerebral tumour. The paralysis had been of very little extent, the boy had been out of condition for more than a month. Dr. Shirres had recommended a surgical operation to relieve the symp-

toms of pressure, but it had not been allowed. After treatment w iodides, there had been some improvement until one week before, wh the child had complained of considerable headache and slight di culty in swallowing and died that night. During the last few ho there had been the characteristic cerebro-cephalic cry.

At the autopsy two distinct cerebellar tumours, probably tuberculo had been found.

Dr. Evans had first seen the patient when he had walked into l office one evening with his father, and he had been struck with t peculiar gait, a sort of swinging of the right foot. There was a histo of measles in June or July, and failing health in the latter part October, with vomiting and headache. On making an examination had found the condition as already reported by Dr. Shirres.

Dr. Shirres stated that recently Dr. C. K. Mills, Peterson, a quite a number of observers had recommended that in these cases supposed malignant growths in the cerebrum or cerebellum, trephini should be undertaken with the hope of saving the eyes and quite number of such cases had been reported where the growth itself h become quiescent, not only in tuberculosis and syphilis, but even malignant disease.

Brief Notes on Cases of Ear Disease.

Dr. Mathewson furnished brief reports of the following cases:- Aphonia, due to 'foreign body' in the External Ausirory Meatus "Keratosis Obturans," "Aspergillus Nigricans" and "Tinnitus, du to ingrowing hair touching tymapnic membrane." See page 280.

Dr. Gordon Byers stated that cases of keratosis obturans had bee extremely common in the Royal Victoria Hospital Clinic during th past year, no less than six or eight having been seen. He had see a case of tinnitus, due to ingrowing hair within a couple of weeks.

Dr. H. S. Birkett thought a good deal of interest in the case aphonia, was lost by the want of a report on the pharyngeal conditio Purely functional cases, with more or less alteration in the voice, we often met with, and it would have been better here to have tried th effect of irritation of the pharynx, so as to test whether the remov of the foreign body and alteration of the voice were dependant upo one another, or merely a coincidence. He also asked if the aspergillu growth had recurred.

Dr. Mills considered that the fact that the path of the reflex wa not determinable in the last case referred to by Dr. Birkett, was n evidence of its not being a reflex condition.

Dr. Mathewson, in reply, stated that there had been no recurrenc

of the growth. With regard to the neurosis theory of the case of aphonia, the patient was a young working man, nineteen years of age, and not the kind of man that one would expect to have hysteria, and the relief had been immediate. He had not told the man anything about the condition present in the ear.

Stated Meeting, March 20, 1903.

H. S. Birkett, M.D., President, in the Chair.

Two Cases of Myelo-Sarcoma of the Long Bones.

Dr. James Bell reported these cases, the first a growth occurring in the upper end of the humerus in a young man aged 26, admitted to the Royal Victoria Hospital in December, 1902. He was a tall, healthy looking man, with an excellent family and personal history. In June, he had noticed pain in the left shoulder joint, and in September enlargement. On the night of December 14th, while assisting a lady to mount the steps of a car, he felt something give way in his arm and the following morning had consulted the speaker. On examination there was a possible exostosis and the skiagraph did not make the diagnosis any clearer, showing only a prominence of a growth posteriorly and anteriorly. The arm was amputated at the shoulder on December 20th and the patient discharged well on January 5th.

The other case was a young woman aged 24 years, admitted to the hospital on February 20, 1903. A year before she had noticed some lameness and soreness about the right knee, but there had been little trouble until June, when the soreness returned and the joint became swollen. In November, she fell and injured the knee and had not been able to walk since. Incision had been advised, as tuberculosis was expected, but on getting out of bed in order to have the joint skiagraphed she felt something give way and the skiagraph showed spontaneous fracture just above the condyles. The occurrence of this spontaneous fracture made the diagnosis clear and the limb was amputated. She made an uninterrupted recovery and was discharged on the 17th of March, perfectly well.

Dr. Keenan reported upon the pathological conditions found.

A Case of Acromegaly.

Dr. R. A. Kerry gave the report of this case, which will be published in full later.

Some Pathological Eye Conditions.

Dr. J. W. Stirling presented some interesting pathological conditions of the eye, mounted in the usual way in gelatine.

The first two were cases of sarcoma of the uveal tract, occurring in the two typical positions, one in the choroid, external to the optic nerve entrance, and the other in the ciliary body. In the latter, which had been done four years before, symptoms had been present for five months, vision was considerably reduced and could see small black fungating points. There had been no metastatic growths and were not likely to be, as they were rare with this form of growth.

The next specimen was a coloboma of the choroid, ciliary body and iris in the right eye, a congenital condition which occurs at the site of the fœtal cleft, another a specimen of detached retina which showed the detachment well, the pigmented layer lying behind the exudation. An atrophied eye which had been lost many years before and showing an ossified mass in the centre was also exhibited.

Dr. Byers said it was a great pity that such beautiful specimens as these would not keep permanently when mounted in this medium. The gelatine in time was liable to melt and completely destroy the specimen. The speaker had lately been trying a method of adding one part in thirty of formalin to the gelatine, which it was claimed so altered it, that even the heat of a Bunsen burner would not melt it.

One statement made by Dr. Stirling he thought might be challenged, both Lawford, Collins and Marshall all had found that recurrences were liable to take place as late as six or seven years after sarcoma, and in one instance thirteen years after.

Intestinal Obstruction caused by an Enterolith.

Dr. F. J. Shepherd reported this case. See page 265.

Dr. James Bell recalled the case of a stone at present in the Museum at McGill University exhibited before this Society some years ago. A woman 58 years of age had symptoms of obstruction for which operation was advised, but refused, and six or seven days later the stone was passed. It was thought to be a gall stone. The interesting feature about the case was that there was no previous history of biliary colic.

Dr. Armstrong said that sometimes a small stone produced complete obstruction and very large ones passed externally. He did not think it was safe to wait for such stones to pass, and cited a case in which an enterolith had ulcerated through into the abdominal cavity.

Dr. Adami said that anyone who did a large number of autopsies was struck by the variation in the diameter of the intestines.

Unruptured Early Tubal Pregnancy,

Dr. Chipman reported this case.

Dr. Lapthorn Smith had shown a case five years before which had

not been ruptured, but hæmorrhage had taken place and turned the tube into a fusiform body about the size of the middle finger. He discussed the theories as to the causation of the condition and criticized Dr. Chipman for not removing the other tube, remarking that he would probably have to do so later for another tubal gestation.

Dr. Evans said that Dr. Smith had made the same prophesy with regard to a case shown by Dr. Springle, but that the patient had since been delivered of two healthy children.

Dr. Armstrong also related a case in which a woman after having one tube removed for this cause had since given birth to two healthy children with normal gestation and normal confinements.

Dr. W. Gardner pointed out the advance that had been made in the matter of diagnosis in ectopic gestation by comparing the diagnosis here, before rupture, with Tait's statement at the Brighton meeting of the British Medical Association in 1896, that a diagnosis was imposible before rupture. Dr. Gardner also brought to mind the fact that in many of these cases rupture took place and the ovum escaped into the peritoneum.

Dr. Lockhart thought the principal point from a practical standpoint was the question of diagnosis previous to rupture. He related the particulars of a case of his own.

Dr. Mills showed a dog which he had brought before the Society one year ago, having nine months previously had a portion of a lobe of the brain removed, at that time the dog had completely recovered with the exception of a slight ataxic gait as was shown on walking, by the high stepping of the front limbs, etc. This improved altogether and on Jan. 6th, the dog had puppies and the result has been to bring on partially a return of the ataxic condition, similar to that shown before the Society one year ago, though already some signs of improvement were evident.

The other dog was one in which there was transverse section of the spinal cord. On holding it up one notices the pendulum-like motion of the hind legs, a contracting in and out of first one limb and then the other in regular time. Immediately after section the superficial reflexes were completely abolished, but are now returning, even after the first day the superficial reflexes in the tail were fairly active. The muscles are atrophied at present and the knee jerks are not so much accelerated, but even now they are readily elicited .

Dr. Gordon demonstrated the reaction of the reflexes.

Dr. Shirres: In starting his paper Dr. Mills remarked that the knee jerk was not a true reflex. I do not think any text-book on diseases of the nervous system holds the opinion that the knee jerk in

man is a true reflex. Late editions of text-books of any importance, such as Church & Peterson, Oppenheim, Gowers and Osler, state that complete division or transverse section of the spinal cord, say in the lower part of the dorsal region, is followed by complete and permanent loss of the reflexes with flaccidity, spastic condition of the limbs never appearing.

Within the last three or four years two cases have come to my hand in the Pathological laboratory, of patients who had been suffering from what was supposed to be complete transverse myelitis of the lower dorsal region. Clinically the following conditions were present:— Complete motor and sensory paralysis of the lower extremities, and also of the bladder and rectum, reflexes, knee jerk, increased ankle clonus and spastic conditions being well pronounced. At autopsy, held a few hours after death, the cord in both cases was seen, in the region of the lower dorsal, to be swollen, the pia mater red and vascular and the consistency of the cord substance was greatly diminished, the inflammation being so great that the affected part was diffluent like cream. I think most pathologists, without a microscopical examination would have stated that there was complete destruction of the cord substance on account of the softened, diffluent state present at the autopsy. I carefully and rapidly hardened the cord, handling it as little as possible, and upon examination with the more recent stains I was able to make out clearly a few fibres which were healthy and apparently unaffected in the centre of the affected region, their presence being quite sufficient to explain the cause of the exaggerated reflexes and spastic conditions of the lower limbs in the two cases. There are, no doubt, cases frequently recorded in our journals of complete destruction of the cord at a certain segment in the dorsal region where the reflexes and spastic condition were present during life, and I am inclined to think that in those cases the macroscopical examination was all that was made and depended upon, but when a microscope was used and stains applied, they were not of the most recent and valuable order (Weigert, Pal Weigert and their modifications), and for those reasons may, I think, account in part for the variability of symptoms described by different observers in transverse lesion of the cord.

Three weeks ago I examined the cord of a live patient in the General Hospital who was suffering from complete transverse division of the lower dorsal region, the result of an accident which occurred some 13 months ago. At that time when brought into hospital, he had complete loss of the reflexes, also motor and sensory paralysis of the lower extremities, as well as paralysis of the bladder and rectum. He was operated upon shortly after by Dr. Armstrong and there was found

to be a complete transverse division of the cord, a separation of about 1½ inches existing between the two ends was to be made out. At the end of the year there had been no return of the reflexes or of motor or sensory power, or of spasticity. Faradic irritability of the muscles of the lower extremities was hard or impossible to obtain on account of the œdema present. Three weeks ago, while the patient was under an anæsthetic for another operation to be performed by Dr. Armstrong, I applied a mild current to the anterior roots of the cord below the lesion (lower segment) and got at once a contraction of different muscles in the legs. I then applied the electrodes to the posterior roots and again elicited distinct contractions, and in that way was able to demonstrate the exact segments corresponding to certain muscles that contracted. This also proved that in this case the lower motor and sensory neurones below the lesion were still healthy 13 months after the date of the accident, although faradic irritability was unable to be obtained in the lower limbs on account of the œdema, and also that the abolition of the knee jerk was not due to destruction of any of the motor neurones below the lesion, the result of accident, which is often described as present by believers who hold that the reflexes are increased in transverse lesion, and if they are not so it is due to hæmorrhage or inflammation of the motor neurones below the seat of division at or soon after time of accident.

Professor Ferrier two years ago emphatically stated that one should never compare the monkey or the lower animals in comparison with man, especially with reference to the etiology of the reflexes. In the lower animals and even with the monkeys each segment of the spinal cord is more or less independent and separate units as shown. I think very well by the dog that Prof. Mills has exhibited to us to-night. In man each segment of the spinal cord is dependent upon the other segments and also on the cerebrum before any true reflexes can take place.

Dr. Mills stated that there was some doubt as to the presence of a distinct tract coming from the cerebellum to the spinal cord. This is new to me, as I understood that there were well-known and distinct tracts traceable from the cerebellum to the cord by way either of the inferior or superior cerebellar penduncles— one called after Beale, described by L. K. Barker in his book of anatomy and physiology and one after Marchi and Ferrier, the descending cerebellar tracts. I had a case of my own where there was a marked atrophy of the right cerebellum, with a distinct atrophy and sclesosis in the cord in the situation described by Beale for his cerebellar descending tract.

Dr. Gilday: I had a child of 5 with Pott's disease of the 4th dorsal, who had paraplegia for a year or two and within the last six months there has been a return of power to the legs, could flex and extend them; there was absence of reflex, sensation present, but had an ataxic walk. This condition has been present for some time and there has been very slight improvement and a marked kyphosis about the 4th dorsal vertebra. The child is in good condition, but has this absence of knee reflexes and the ataxic condition.

Dr. Mills: I think you will find that the great difference between the clinicians, including the neurologists, and the physiologists, is that the former are in that happy condition in which they are not troubled so much by doubts as the physiologists, a skeptical state of mind is not a happy one, but I cannot help thinking that it conduces to truth. I would be delighted to think that things are so well settled as Dr. Shirres seems to think. The purpose of this communication was to draw the attention of the members towards the subject so that it might be settled. It requires a good many cases to settle a point and I can believe that the reflexes may be lost in 50 human beings and not lost in the 51st. As to that path from the cerebellum, or any path from the cerebellum. I took care to say was "incontrovertebly" established. We know paths towards the cerebellum very well and I think it is very likely that there are paths from the cerrebellum, but to say that there have been paths well demonstrated is more than I can say, so that I would suggest that a healthy state of mind is one of enquiry rather than confident belief on the subject.

Dr. Mills: This is an extremely interesting paper because it is just what occurs normally in nature, that is, all animals do not get old in all their parts equally, or as Foster said, death is with the animal not a gradual or harmonious decay, but like the breaking down of an axle of a vehicle and it seems that the parts which break down are those which are last built up. Speaking for the physiologists who are not here, Sherrington and Greenbaum, I think Dr. Shirres has credited them with more than they would claim, namely, of applying their experiments to the human being. The results of Sherrington and Greenbaum's experiments applied to man, may seem to imply that such experiments are not perhaps exactly reliable, I would, therefore, remind you that these experiments were done on apes and those two authorities have enormous experience and I must say that I have implicit confidence in these experiments by which he seems to establish that the motor areas are in the prefrontal region and not the sulcus, and I do not see exactly that even Dr. Shirres's case, goes against that. With regard to the so-called knee reflexes, the theory was established by

physiologists and not by neurologists, and so far as I can see it never could have been established, except by actual physiological experiments with measurements.

Dr. Shirres: I think the knee jerk was first systematically studied by Erb and Westphal, and was called by them the knee phenomenon. I still adhere to my opinion with the neurologists of to-day, Gowers, Church, Bastian, Osler and others, who state that with transverse section of the cord, there is absolute and permanent abolition of the reflexes without flaccidity.

Concerning Sherrington and Grunbaum's experiments on the monkey and ape, I must have been misunderstood, if I inferred that the motor centres as shown by them to be situated in the pre-frontal convolution could not be relied upon if applied to man, for in my case of amaurotic family idiocy where the upper motor neurones were completely degenerated, marked atrophy of the post-central convolutions was present, but little change in the pre-frontal. That points fairly strongly to the old idea that the motor centres are situated in the post central convolution.

THE

Montreal Medical Journal.

A Monthly Record of the Progress of Medical and Surgical Science.

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ADMISSION TO PRACTICE BY GRACE OF LEGISLATURE.

The President and Council of the College of Physicians and Surgeons of Quebec possess the respect and confidence of the medical profession of the Province to a degree unequalled for many long years. It is felt that the Executive is truly representative and that it has the best interests of the profession at heart. Indeed, as at present situated, it may freely be said that the profession would be glad to see it endowed with yet further powers. As a matter of fact, however, we find ourselves in face of a subtle movement on the part of the Legislature to take from it or to nullify the powers already granted to it. By its Charter it is made the custodian and the guardian of the professional interests of the Province, to it is given the power to determine who is and who is not to be regarded as worthy to receive the license to practise in the Province; it has been accorded the right to determine the curriculum, which all should have undergone prior to obtaining the license in question.

But what regard does the Provincial Legislature pay to these rights conferred upon the college? A given individual has only to be refused

a licence by the college upon any grounds, either his curriculum may have been inadequate or his examination unsatisfactory,—it does not matter what is the cause—and that individual need only have a private act drafted at the cost of some hundred dollars or so,—need only, in addition, obtain the interest of one or two members; it does not matter how he obtains that interest,—whether from previous personal acquaintance, or from absence of previous acquaintance, but the possession of some spare dollars,—and that private act is passed by the Legislature, in spite of the protests of the College of Physicians and Surgeons, indeed, the stronger and more forcible those protests, the greater the likelihood that the private bill will be passed and that one considered incompetent by the elected representatives of the profession is admitted to practise within the limits of the Province.

Such a condition of affairs is intolerable and, unfortunately, complete redress would not seem possible, at least, until that millennium when the people of this Province as a body elect as members of the Provincial Legislature those who, as a body, are worthy of respect and worthy of such responsible positions. Such a millennium seems, if anything, to be coming year by year more distant rather than nearer. The most that we can do is to recognize ourselves how intolerable a condition of affairs this is, and to educate public opinion, in season and out of season, until for very shame our Legislature hesitates to pass bills of this nature.

The Quebec Legislature reminds us of His Grace the Archbishop of Canterbury. From the Middle Ages the distinguished occupants of this position, the Primates of the Church of England, have had the right to confer, at their own will and pleasure, the degree of Doctor in Medicine and, degrees so conferred are registrable. Fortunately, for now many generations, the Archbishops of Canterbury have rarely used their privilege, nor have they employed it in the case of those not already qualified to practise by the possession of other diplomas. How ridiculous it seems that an individual theologian should possess these powers! Yet that theologian is a man of high culture and, as a man, above reproach. But if absurd in his case, is it not yet more absurd that equal powers are, not only possessed, but acted upon without the advice of the profession being sought, by that heterogeneous rabble which constitutes our Provincial Parliament at Quebec?

Let is not, however, be thought that we consider that the blame rests wholly with the Provincial Parliament. We feel convinced that there would not be so many private bills to grant the privilege of practising within the Province, if the regulations of the college were

conceived upon a wiser and a more broad-minded plan. Those regulations are distinctly provincial. Why is is necessary to demand that a medical graduate who desires to practise in this Province should have passed the Provincial Entrance Examination and should have undergone a regulation course of medical instruction within the Province? Let us admit that it is to the advantage of our Provincial Schools that students be incited to undergo a course of medical instruction in this Province (which is not the same thing as admitting that it is always to the advantage of the student), it nevertheless seems to us possible to arrange so that those obviously of good standing, but who have not fulfilled the regulations, be recognized by the college and permitted to practise in the Province without going before the Legislative body at Quebec. A special committee to determine the merits of each individual case and to recommend those found fit to be admitted to the final examination, would accomplish all that is necessary. Let the College, that is, admit obviously good, well trained men to practise in the Province without interposing excessive conditions. If it does this, then those only will apply for admission by private bill, who are discredited. In this way admission by this portal will come to be regarded as discreditable by all parties concerned and thereby reduced to a minimum.

SIR WILLIAM BANKS.

The Profession in Canada will join that of England in congratulating Sir William Banks upon his election as Consulting Surgeon to the Liverpool Royal Infirmary with charge of ten beds. "This allocation was made," as stated in the British Medical Journal, "in appreciation of the work which he has done for the Institution, and as an indication of the desire of the Governors that his working connexion with the Infirmary should continue."

It is also a handsome compliment from his colleagues on the Medical Board, a fitting tribute to a very successful teacher and public spirited man, whose learning and general spirit have contributed largely to the success of the Royal Infirmary, and to the Medical Faculty of the Liverpool School of Medicine.

The incident is also gratifying as an indication of the good relations which exist between the Committee of the Infirmary and the Medical Staff.

Dr. G. Gordon Campbell has been appointed Professor of Dermatology in the Medical Department of the University of Vermont at Burlington.

From a number of isolated districts in Nova Scotia a very mild form of small-pox is reported. At Thorburn, near New Glasgow, some thirty cases have developed, all of a very light nature.

The Samuel D. Gross prize of twelve hundred dollars will be awarded on January 1, 1905. The prize is awarded every five years for the best essay on some subject in Surgical Pathology or Practise, founded on original investigations. The candidates must be American citizens.

The Council of Physicians and Surgeons of New Brunswick, acting for the New Brunswick Medical Society, has sent to the Provincial Legislature a bill with the object of securing a limit of one year to the time in which an action may be brought for injuries resulting from alleged malpractice.

Proceedings of the McGill Medical Society of Undergraduates.

ARTIFICIAL FEEDING OF CHILDREN.

BY

W. G. Campbell, '03.

Introduction. The importance of this branch to the medical profession is self-evident. With the advances of civilization, and the increase of population, the number of infants requiring to be fed artificially is rapidly increasing. Among the rich, luxurious habits of life, and among the poor, improper hygienic surroundings, poor food and various moral evils are all contributing to the gradual loss of the function of lactation. And as a result, a sequel, I might say, of the gradually increasing difficulties of pregnancy and parturition, the physiological function of lactation is becoming less and less.

The problem of rectifying this defect must be mastered by the family physician. This is certainly a great barrier, a problem very difficult to solve, but it is surmountable if proper precautions are taken.

This question of rational infant feeding is yet quite in the experimental stage, although very valuable results have been obtained by various investigators.

Prior to 1882 very little attention was directed to this part of the medical man's work. At this date Meigs (Boston), through his study of the composition of human milk, the natural and best food for infants, laid the foundation for the rational feeding of the new-born.

In 1890 Dr. Rotch (Boston), who had worked very extensively on the subject, simplified and perfected the problem so that it was now possible to write a prescription for a definite food composition, to be put up in a laboratory, the same as any physician would give a prescription to a patient to be filled by an apothecary.

In this paper, my remarks will be confined to what I wish to call infancy proper. This comprises the first thirty months of life or ends with the completion of primary dentition, and for convenience of description and plainness, I shall divide the period into two divisions, namely, the first nutritive period comprising the first ten or twelve months, and the second nutritive period, from this age to the end of infancy.

The first is undoubtedly the most difficult, and at the same time the

most important period, during which time the infant thrives best on an appropriate combination of fat, carbohydrate in the form of sugar, proteid, salts and water.

The second period is a transitional one, commencing with the development of the amylolytic function about the eleventh or twelfth month, and ending quite abruptly at the thirtieth month.

With the development of this functional period, the digestion requires to be so regulated that the functions will be utilized, but shall not be over-taxed. Towards the end of the first year the digestive tract should be used for the conversion of amylaceous elements of food into sugar, and by so doing, the infant enters upon the second nutritive period.

Reasons for adopting artificial feeding:—

The first and foremost reason for introducing artificial feeding is to reduce infantile mortality.

The death rate of infants will always be relatively high as compared to that of adults. This is a universal law which always has, and undoubtedly always will exist. To alter such a condition is beyond human power, but much can be accomplished in lessening the causes of this calamity.

The earliest months of life present the greatest difficulties, which gradually become less pronounced with each succeeding week, month and year, until infancy expires.

The child may refuse to take the breast, when suffering from such affections as stomatitis, thrush or the like, or it may suckle with difficulty due to cleft palate, hare-lip, tongue-tie and such causes. There may be dyspnœa, or difficult breathing due to some malformation of the nasal passages, resulting in impeded nursing. The mother's milk may disagree with the infant, causing dyspepsia or diarrhœa, or the quantity of the milk may be sufficient while the quality is deficient.

Persistence or recurrence of colostrum corpuscles, or other abnormal constituents in milk, particularly proteids, due to whatever causes, demands a discontinuence of the use of such nourishment.

Artificial feeding is almost invariably called for in premature infants as they are unable to suckle.

In reference to the mother, many causes necessitate some artificial means of sustaining the child. Certain malformations, retraction, ulceration, fissure, or abscess of the breast or nipple will make weaning imperative. Any infectious malady, or such diseases as syphilis, tuberculosis, cancer and the like demand the discontinuance of breast feeding. Weakness or debility on the mother's part calls for the cessation of lactation.

Weaning of the child is often necessary on the return of menstruation, or of another pregnancy. After a lactation period of nine or ten months the drain on the mother's system is often very marked, and a normal child ought never be suckled past this age, unless during hot weather, and it be the wish of the mother to continue nursing through the summer months.

Lastly, death of the mother will demand that the child be fed artificially.

Foods:—All mammalian offspring are carnivora, the human, being no exception, hence the food should essentially be animal and not vegetable in character. The milk of each species is the real physiological food for its progeny.

From preceding paragraphs, the many instances cited requiring artificial feeding, naturally raises the question of what food is to be substituted. Wet nursing might be suggested and at first sight appears to approach Nature's method very closely. But the many disadvantages experienced places this method in a doubtful category. Under certain circumstances mixed feeding may be very satisfactorily carried out. But in a great many cases complete artificial feeding is the only alternative.

The food to be used has now to be determined.

A great number of patent preparations are available, but these are chiefly farinaceous and constitute a foreign body in the infant's stomach. Besides, when used, they are prescribed empirically and this cannot be too strongly condemned. Mare's milk, ass's milk, goat's milk and the like have all been used, chiefly experimentally. Ass's milk has been largely used in Paris, but is now completely discarded. Cow's milk is now the form universally used. It is cheap, easily obtainable, and contains chemically the same constituents as human milk, although their composition varies widely.

Prof. Czerny (Breslau), maintains that none of these other milks possess any intrinsic value which should establish their preference over wholesome cow's milk.

Food Modification: Granted that a pure milk supply is obtainable, the problem of modifying this milk to suit the patient, confronts the physician. The object of modification of milk is to alter the constituents so as to imitate as nearly as possible mother's milk, to infringe on Nature's diet, and so adapt the supplemental food to the child. No hard and fast rule can be laid down, but each case must be studied individually. The great difficulty is proteid adaptation. It will be remembered that the proteids of cow's milk are of much higher per-

centage than in mother's milk. The fats and sugar are not so widely divergent, and may quite easily be regulated. But the proteids are what almost invariably give rise to gastric and intestinal disturbances in artificial feeding. Dilution of the milk wth water easily reduces the percentage of proteid to correspond with the same constituent in human milk. This, however, only partially solves the problem.

Clinical experience teaches that although the proteids are reduced, perhaps, far below the amount in mother's milk, still there may be trouble with the digestive function.

Chemical analysis shows cow's milk to contain a larger amount of caseinogen than mother's milk, while the lact-albumen is about the same proportion in each.

The result is the formation from the former of very large tough curds, whereas, the proteids from human milk forms small floculent curds. Consequently, the digestibility of cow's milk is much more difficult, even though the amount of proteids is reduced much below the standard. Added to this there appears to be a different atomic structure of the proteid matter of cow's milk, which the infant stomach is unable to properly and satisfactorily manage.

But, while diluting the milk, say six times, to reduce the proteid to suit the infant's digestion, the sugar and fats have also been proportionately lowered. These may again be raised to any percentage desirable, the sugar by the addition of either cane or milk sugar solution of known strength, and the fats by adding cream of a known richness.

These constituents rarely give rise to gastric disturbances, and if they do, the source of error can be easily rectified.

The fat of cow's milk is in the form of an emulsion quite similar to that of human milk, and although the chemical composition is somewhat different the variation is so slight as to cause no appreciable disturbance. If there is excess of fat, the food will be regurgitated in small quantities an hour or so after taken, or else by increasing peristalsis, frequent loose stools will be passed containing globules or curds of fat. Colic may be evidenced.

Hence, if a child suffers from constipation, increase of fat in the food is indicated, and will immediately relieve the bowels.

On the other hand, fat poverty in the food is evidenced by failure of increase in weight, constipation and emaciation, a very serious condition if allowed to continue.

The foregoing applies only to the addition of cream obtained by the gravity method. Cream obtained by centrifugal processes has the fat emulsion destroyed, the fat cells are broken down so that they now become aggregated into a conglomerate mass, and appear on the surface

as globules of butter. This is non-assimilable to the infant and signs of mal-nutrition are sure to appear.

The question of freshness and purity of centrifugal cream coupled with its uniformity are strongly in favor of its use, it being known that gravity cream, unless special precautions are taken, forms a hot-bed for bacteria.

But if the fat from this cream cannot be assimilated what is to be gained by using it. Whatever form of cream is used it is seldom that the fat of the food should be raised over 4%, although under certain circumstances it may advantageously be increased to 5% or even 6%.

The desired proportion of sugar in the food is obtained by the addition of either milk sugar (lactose), or cane-sugar (saccharose). Many authorities recommend the use of cane sugar only, but by so doing we are adding what is not normally present in the physiological infant food.

Jacobi is a strong advocate of the use of cane sugar for the following reasons:—

(a) Because the composition is known and it cannot be adulterated, whereas milk sugar can.

(b) Commercial milk-sugar is obtained from cow's milk, and this is not indentical with the sugar of mother's milk.

(c) Milk-sugar contains the crystalisable inorganic constituents of the milk from which it is derived.

(d) Milk-sugar is laxative in its action and where purgation is going on there can be practically no absorption.

Czerny and several other pediatrists maintain that sugar of any form is uninjurious, indifferent and produces no symptoms, and recommend the use of saccharine for the new-born babe. But clinical experience proves that excess of sugar in the milk produces eructation of gas from the stomach, regurgitation of food in small quantities, colic may be present, and the stools are thin, green and very acid, often causing severe irritation of the buttocks.

Deficiency of sugar results in the failure of the normal gain of weight and there may be actual loss of flesh. According to the caloric theory sugar is supposed to replace fat, but this is more a laboratory result than a physiological proof. If sugar is to be utilized in replacing fat, it is done so to the detriment of the bowels. It has been proven conclusively that inordinate feeding of sugar, and particularly commercial milk-sugar, produces an excess of lactic acid, thus a detriment to nutrition and a probable factor towards the production of rachitis (since this disease has been attributed to an excess of lactic acid). The

consensus of opinion appears to be that sugar should rarely be less than 5% or exceed 7% of the diet.

What methods are to be adopted to obtain the best results in proteid digestion?

Excess of this ingredient causes frequent regurgitation shortly after feeding, the vomit containing curds of various sizes. The child cries considerably on account of colicy pains. Constipation may be present or else there may be short attacks of diarrhœa, the stools containing masses of proteid curds. Imperfect digestion of proteid matter may give rise to the same disturbances and demands just as immediate reduction in the amount of albuminoids in the food.

The practice of peptonising the food has been largely followed, the idea being that the child's stomach will be able to continue the process of digestion and get the benefit of complete assimilation of the proteid matter. This certainly does not resemble mother's milk, which contains no peptone whatever. If this method is utilized at all, it should not be continued over a very long period, else the natural means of digestion will become altered.

Diluting milk with various gruels has been tried with the hope that this would facilitate proteid digestion. But here again foreign material is added to the food and no particularly marked adaptability to assist digestion, and the result has been anything but satisfactory. Pure water dilution gives fairly satisfactory results.

The best results, and they are undoubtedly very gratifying, have been obtained by using whey as the diluent of milk. This does not produce a proportion of casein and soluble albumin exactly similar to that of mother's milk, but is infinitely superior to using any other known diluent; it results in less casein and more soluble albumin, consisting of lactalbumin and lactoglobin. Whey is a natural sugar of milk solution and hence is a good means of assisting in raising the sugar standard, therefore requiring less of the commercial article.

Apparently the only disadvantage in the use of whey, is that it contains all the mineral constituents of the milk, but since they are to a great extent inert, this one weak point is easily off-set by the counter beneficial results.

At the Montreal Foundling Institute whey has recently been used, and since its adoption very satisfactory results have been obtained, many children having a couple of weeks breast feeding showing practically a continual gain when abruptly changed from natural to artificial feeding, while others, which have never been breast-fed at all show very little loss of weight.

But whatever method of modification is practiced, special care must

be exercised in obtaining a sufficiently weak preparation that the patient's digestive functions may not be deranged.

It is much safer to commence on an insufficient diet and gradually increase the strength up to a point of tolerance, than it is to be forced, from a refractory gastric disturbance, to lessen the strength of the food, perhaps far below what the child ought to manage. The same rule also applies to the amount the child should receive. It is infinitely better for the child to receive a teaspoonful of adapted milk and retain it, than for it to have four or five ounces of perhaps a stronger solution and vomit it.

The quality and quantity of food the child should receive are extremely important matters and many times a person will be provoked by the mother, because she thinks you are giving the infant too little nourishment.

After carefully starting the patient on an adaptable diet, the next problem is to increase the nutriment to the point of tolerance, so as to obtain the limit of success. This requires close observation. The child may not be able to utilise a stronger food, but it may satisfactorily take an increased quantity, while on the other hand the quantity cannot be increased, but the quality may.

Under any condition the increase of either must be very gradual, as the infant's stomach will not tolerate sudden or marked changes in its diet.

The amount of food required by the child should be regulated more by the age than the weight.

Both mothers and physicians are prone to give too large quantities, especially when beginning the artificial feeding. From 500 (20 oz.) to 600 (25 oz.) grammes daily during the first few months is sufficient, if the gain in body weight is normal. Too frequent feeding should also be strongly guarded against. It should be urged upon all mothers and nurses to feed the child at regular stated intervals.

Prof. Czerny maintains that a child should be fed six times in 24 hours during the first week and after that only five times. He says further, that the stomach of a healthy child is usually empty about 1½ hours after feeding and the fact that the child sleeps past this length of time shows:

(*a*) That the stomach may be empty without causing hunger distress.

(*b*) That where in cases of disease, digestion is delayed, and hence the next feeding should be delayed, for nature empties the stomach of one meal long before it should receive another.

Excess in the amount of food is evidenced by very much the same

symptoms, as when the individual constituents are superabundant plus a regurgitation immediately after feeding.

Holt's summary of the indications for milk modification is as follows, namely:—

(1) If the child is not gaining in weight without special signs of indigestion, increase the proportions of all the ingredients.

(2) If habitual colic is present reduce the proteids.

(3) If vomiting occurs soon after feeding reduce the quantity of food given.

(4) Regurgitation of sour masses demands the reduction of fats and perhaps proteids.

(5) For obstinate constipation increase both fats and proteids.

The feeding of premature infants demands even greater caution than when dealing with full term children. The quantity of food is an extremely important question, and distention of the stomach must be avoided, else a fatal result may follow.

The capacity of the premature stomach has been obtained by the same methods as that in the fully developed organ. Investigations show that it is much safer to begin with a very small amount, about 5 c.c. and increase very gradually until the organ is thought to be sufficently filled. Like all other organs at this time, the stomach is also undeveloped and may be easily over-taxed.

For instance, the capacity of fat digestion at full term may be 3%, whereas in a premature infant, say at seven months, it may be only 1%, or even less.

In this respect clinical experience also teaches, that while mother's milk is nature's food for the child, yet it is wholly unsatisfactory for the premature infant.

The human lacteal glands are practically passive as regards the constituents of the milk and many premature infants perish when put to the breast, on account of the concentrated food. In such instances, properly adapted cow's milk offers the most favorable chances for maintaining the life of the patient in which it may be necessary to commence with a .5% of fat and the other constituents in a similarly low proportion.

Pasteurizing and Sterilizing: Regarding pasteurizing and sterilizing of milk, a few remarks may be here in order. Any milk containing pathogenic organisms is not a very desirable commodity, but since all commercial milk, unless treated by the above methods, is more or less contaminated, the question to be decided is, shall it be treated, or shall it be allowed to be used in its raw state.

Sterilization coagulates the albumin, alters the fat and so changes

the food that the child cannot digest it. If the milk has been seriously contaminated, not only the bacteria are present, but also their toxines Sterilization will destroy the organisms, but has no effect whatever on the toxines, hence there are often disastrous results, although sterilization has been properly performed.

Pasteurizing, while it is not such a positive guard against bacteria, is just as much so against their toxines and has the advantage of not markedly altering the constituents or the taste of the milk, and the digestibility is not impeded.

Milk is endowed with antiscrobutic properties, and Marfan claims to have established the presence of zymoses, particularly in human milk. He considers all milk, not as an inert substance, but rather as partaking of the nature of some tissue and certainly containing some special ferment. These properties are all destroyed, by either pasteurization or sterilization.

But notwithstanding all these changes, the advantages obtained by pasteurizing all city milk, especially during the summer months, is quite beyond dispute.

The matter of sterilization is more doubtful, as the changes are so radical that perhaps the end does not justify the means.

The question of the use of preservatives and antiseptics in milk, particularly for infant feeding, cannot be too strongly condemned. If milk was properly cared for, it should scarcely require any of the above mentioned corrections.

The second nutritive period commences with the age for weaning the child, which is between the 9th and 12th month. The amylolytic function has at this age almost reached full development and should be utilised in the conversion of starchy elements of food into sugar. Preparations of oats or barley should be employed to test this function, (oatmeal, gruel and barley broth being added to the milk diet).

The high percentage of sugar used should now be gradually reduced to that normally present in cow's milk, the starchy food becoming a substitute. (Oats possess a higher percentage of starch and fat than does barley).

The assimilation of proteids is also markedly increased and this constituent requires to be raised. Likewise also the fats, which is most easily accomplished by the use of oats. Wheat may be used, but is not so satisfactory as either oats or barley. By this means a new regime is established, the digestive functions of the age are satisfied and abundant nutrition is provided.

From the 12th to the 20 months, the articles of diet may be gradually increased, caution being taken to always keep the patient under close

observation, since some children may be able to digest and assimilate a large proportion of starch, while others may require a larger amount of proteids. Bread in the form of dried crusts should be given daily. A peach or a baked apple may occasionally be added to the fare, but very few other fruits are permissible, as they are unnecessary and are apt to give rise to trouble. Chicken and mutton broths should now be given.

Such articles as cake and candy should be excluded completely, not that an occasional use may in itself do any particular harm, but that it perverts the child's taste from the articles of food necessary for its proper nutrition.

A child that has been breast fed, until it has reached this second period, demands close attention in changing to an artificial diet. This generally requires five or six weeks to accomplish properly. The first week the child may have artificial feeding once a day; the second week a morning and evening feeding; a third week alternately with the breast; the fourth week the breast twice a day; the fifth week only once; and by the sixth week artificial feeding is completely in vogue.

If for any reasons weaning requires to be carried out abruptly, the matter of a proper food is imperative and the rules laid down in preceding paragraphs must be followed.

Infants, under suitable hygenic surroundings, if properly fed, although on an artificial diet, should show and do show good development, firm flesh, average strength, good bony growth, normal dentition, and healthy digestive functions, either at the commencement or the end of this second nutritive period.

Conclusion: The profession is yet unable to state which is the best modification of milk to be adopted in the manifold instances where artificial feeding is indicated, but it has learned that some such preparation of milk is a valuable adjunct in the case of infants. As in other branches of medicine, each individual under our care requires separate considerations based on the facts of the case. No hard and fast rule can be laid down to be followed explicitly, but rather each patient is a problem by itself.

Some one may argue that milk modification and proper artificial feeding of infants may easily be carried out where one has means and is in touch with a laboratory. I grant you that the uniformity and reliability of laboratory preparations are much to be preferred to home modification, and just as office prescribing of drugs is becoming a practice of the past, so is home modification of milk being replaced by properly equipped institutions, in the larger cities at least. But with an intelligent person, a proper equipment, and a certain amount

of care, there is no reason why, even in the remotest districts, satisfactory results should not be obtained by home modification.

Regarding the matter of expense, always an important consideration, an objection is raised to the extra cost of good milk, so necessary, if the best results are to be obtained, and physicians who demand a cheap milk, do more harm to scientific and adaptable feeding than any other class of citizens. In other branches of medicine expense is not considered if assistance is forthcoming. In diphtheria, who would consider for a moment the withholding of antitoxin, or in appendicitis, if an operation is deemed necessary, the surgeon's fee is not given a second thought. Why then should the helpless infant be improperly nourished during the critical period of its life, at a time when so much depends on its future health and vitality. Charity spends millions of dollars annually on the treatment of diseases. Is it not quite possible, that if a portion of this amount were expended prophylactively in rearing healthy, vigorous children, to obtain much better results?

Improper nourishment during the early years of life leads to poor physique, improper development and a delicate constitution, so that when the child reaches the second critical age, namely, puberty, he may become practically a wreck.

The same child, if the foundation had been properly laid, might have developed a tower of strength, and throughout life enjoyed the most cherished and coveted gift to mankind, namely, a strong, healthy, robust body and a sound mind.

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THE UNIFORMITY OF INFLAMMATORY DISEASE.

BY

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The variation of one case of a disease from another is the factor contributing most to the interest of the practice of medicine, and to the difficulty of its study. Since these variations are so great, one often fails to recognize the common ground that underlies all inflammatory reactions, and thereby greatly increases the difficulty of understanding each case. The object of these remarks, is to insist upon the accurate knowledge of the process of inflammation as a basis upon which can be built the superstructure of all various inflammatory conditions, and to insist, further, upon the impossibility of understanding or classifying these numerous and apparently different problems, without such knowledge.

Every case of Inflammation is a problem into which enter two factors --the causative agent, and the animal body; the former, an ever-varying force acts upon the latter, an ever-varying quantity, in a way which is, luckily, comparatively invariable. Therefore, of three entities in the problem, two are constantly varying, the third fixed; there are thus some important points to be noted:—

(1) The result of such a problem cannot be guessed.

(2) It is scarcely possible that any two such problems can ever have the same answer; hence is the variation of cases.

(3) Where so much is variable, it is necessary to thoroughly understand the non-variable part,—that is *the process.*

The process of inflammation consists of a series of stages, which are always present, which we may designate a b c d etc.; the tissues are educated to respond in only one way, but the relations a to b, to c, to d, with respect to degree and time may vary greatly, and any one, or any combination of two or more, may over-shadow the others so that its formula will read somewhat as follows:—a b c C C C C C C d e f g H H H i j k, etc., and evidently this inflammation would be named, C H Another individual with the same toxin and the same process, by virtue

of his individuality, might make his case read:—A. A. B B c d e f g, etc., and thiswould obviously be called A B. Is there any ground for calling A B and C H different diseases? None whatever. The name given is that particular one suggested by the most prominent feature of the case.

In early days the picturesque, if slightly personal, method of naming men was from their individual characteristics; two brothers might resemble one the other, in a hundred characteristics, yet the one might be named from his large nose, the other from his red hair, and their names would fail to suggest their relationship.

To give a concrete example, it may be said that we speak of *fibrinous, catarrhal, fibroid, cheesy* and *purulent* pneumonia, laying stress upon the differences and failing to insist upon the resemblances of one to the other. We speak of syphilitic gummata and tubercles, as if they were two widely different forms of disease instead of two perfectly parallel processes. We had thought at one time that the existence of the giant cell in tuberculosis was characteristic of that disease. Since giant cells exist in syphilis and in chronic inflammation of a simple character, are we to suppose that Nature has deprived us of a useful aid in the diagnosis of tuberculosis? On the contrary, she has rather indicated the very close parallelism which exists between these three.

Before attempting, then, to understand or teach the pathology of tuberculosis and syphilis as separate diseases, it is absolutely essential that we remember that these are separate examples of the same process, that the features of one are reproduced in the other, that both, in short, are inflammations of a chronic type. One may go further, by making comparison between an acute abscess and a caseated tubercle, for he will find that the old formula of inflammation with its sequences holds in both; in the acute abscess it will be a b c d, etc., and all may be complete in two days, whereas in the tubercle it will be a a b b b b b b c c c d d d d d, etc., and the process may require two months. Why the former is rapid and the latter slow may depend upon many circumstances, but the most easily grasped idea, is that the toxin in the former may be of strength A 10, and in the latter M 1.

A workable idea of toxin-power is the following: There are different degrees of toxin or irritant: First there are those which kill the cell as soon as they touch it, which "strike it dead"—formula A 50; second, those which do not kill at once, but send the cell into "a decline," which we describe as the sequence of events, roughly indicated one after the other by the conditions of cloudy swelling, granular swelling (or granular degeneration), disintegration, and final death; this second grade of toxin may be designated M 1; thirdly, the weakest toxins,—formula S. 5, have apparently no power to injure the cell, but rather

irritate it to activity and overgrowth; this activity leads to the "reproduction of the cells of the part," which newly formed cells, being aggressive and active, are doubtless a great source of strength to the tissue; the homely example that occurs to me, is that of the small dog, the toxin that irritates the large dog, the tissue, until the latter irritated to activity, bestirs himself and kills its tormentor.

In explanation of the second of these degrees of toxin-strength, it may be pointed out that the sequence of events may occur rapidly or rules, which properly applied, underlie all inflammatory reaction, acute inflammation of the cell, the point at which an inflammation becomes chronic being arbitrary.

What are, then, the cut-and-dried facts which one must have grasped as a basis of all inflammatory reaction? There are certain fundamental rules, which properly applied, underly all inflammatory reaction, acute or chronic, and a practical, though incomplete rule of thumb is here stated.

The irritant.—We refer to an irritative agent of the second class, that is, one not strong enough to "strike dead" the tissues, nor so weak as not to damage them. It matters not if the irritant be physical, chemical or bacterial.

The tissues.—Consider every organ as possessing two parts; (a) its parenchyma, the essential cellular structure, it may be a liver cell, a muscle cell, a mucosal cell, or a lymphocyte; and (b) its connective tissue filling the subsidiary rôle, the capsule, the stroma, etc. The parenchyma is more highly organized, fulfils the higher functions, is, in fact, the aristocracy of the tissue; the connective tissue, lower in function, more mechanical in its purposes, is the "common people." Observe that a toxin, sufficient to injure the highly organized "aristocratic" cell may produce no perceptible effect upon the "coarser grained" connective tissue fibre. These two kinds of tissue are everywhere side by side, and the irritant necessarily reaches both; it is essential, then, in the study of any case, to ask: What is the effect of the irritant upon (a) the parenchyma; (b) the connective tissue?

The Process.—(1) The cell (think of a concrete example, such as a kidney-tubule cell or a muscle fibre) becomes swollen, cloudy, irregular and indistinct of outline; then its cytoplasm becomes granular, it may develop fat droplets, and gradual disintegration occurs; instead of running the whole gamut, it may may at any stage, if the irritant permit, begin to recover and finally return to the normal. (2) For an example of connective tissue, take, instead of the stroma of an organ, a piece of lax subcutaneous tissue, with its fibres, its blood vessels, considering it as an aggregation rather than as individual elements. The vessels dilate, congestion occurs, serum exudes, diapedesis of leucocytes goes

on, the individual cells may proliferate, and our tissue becomes sodden and infiltrated by inflammatory cells, that is, by leucocytes and the new-born cells that have sprung from the "cells of the part." If the toxin is weak, the congestion, diapedesis, etc., may be slight and the reproduction of "cells of the part" correspondingly greater. May I digress to point out the aptitude of the ancient jingle, "rubor, calor, tumor dolor?" The congestion gives the "rubor;" the increased heat production of the congestion, and possibly the lessened heat radiation, by slowing of the circulation, combine to produce the "calor;" the exuded serum, the inrushing leucocytes, and the cells new-born from the original "cells of the part" together require increased space, and constitute the "tumor," and the stretched nerves are responsible for the "dolor." Any degree of this process may and does exist in the stroma of an organ as accurately as it occurs in the subcutaneous tissue.

To arrive at the condition of any inflamed organ, it is necessary to observe to what extent the damage to the parenchyma has gone, and what degree of interstitial reaction has accompanied it. The most acute irritants are prone to destroy both; the moderate irritants will probably affect the less hardy parenchyma to a greater degree, and the weakest irritants exerting their influence during long periods, while tending to destroy some cells may irritate others to reproduction, and thus preserve a continuity of parenchyma at the same time that they are causing a gradual overgrowth of the interstitial substance. Let us take a definite example, acute enteritis. The mucosal cells will be found to be in a stage of reaction, anywhere in the series, from cloudy swelling to a state bordering upon death; the connective tissue will undergo the various stages of congestion, exudation, diapedesis; during the congestion, glandular activity and exuding serum together, constitute the fluid which drains from the part, and observing this to be the most strongly marked characteristic, the condition is called *catarrhal* enteritis. Should diapedesis be so great that the leucocytes render the secretion turbid, it is called *purulent*; should the sodden, infiltrated connective tissue break down at a late stage and form an abscess, it is designated, a *phlegmonous* enteritis; should death of the mucosal cells be associated with death of the submucosal cells, there is loss of tissue, and it is called "*ulcerative*"; should mucosal cells die, remain in situ, and the exuded serum and leucocytes form lymph which also remains upon the surface, we have a mass of necrotic tissue, lymph, etc., which, being the most striking feature, earns for the condition the name of *membranous*. Thus, according to the stage, or according to the preponderance of any one feature, the enteritis may be designated catarrhal, purulent, phlegmonous, ulcerative, or membranous; yet it is essentially the same unvarying process.

The active, progressive inflammation, such as the above, which works rapidly and produces definite results, is a clear-cut fact; but the inflammations that act by the effect of weak irritants, (it may even be, by failure of the cell to rid itself of its products of metabolism) which require months or years to accomplish, are so gradual, that they are often scarcely discernible. We call them degenerations, and to many the term degeneration implies a hazy, indefinite condition, hardly health and hardly disease, but whatever it be, not an inflammation. Yet it is an inflammation. We must recognize that the "degenerations" of the heart are inflammations, brought about by weak irritants acting through long courses of time. The histological picture of such a degeneration is the same, in every particular, as the picture of an inflammation. Does disease bring the cell by two different routes, to the same end? It is hardly to be supposed.

Summarized, the facts are these:—

1. Inflammation is a definite series of events, occurring in a definite order; the events may require widely different periods of time, and one event may be more prominent than another, but the uniformity of the process can be depended upon.

2. The ability to classify and recognize any given case of inflammation depends upon a clear knowledge of this sequence of events, which is found described in the introductory part of every text-book, and, in default of a better way, must be slavishly learned therefrom.

3. There is scarcely a limit to the weakness of an irritant, or to the length of time through which an irritant may act; however, slow the process, the various events in the sequence are present, in their definite order, and the process, though called by the indefinite term "degeneration," is, in kind, an inflammation.

MULTIPLE PRIMARY TUMOURS IN THE STOMACH AND MAMMA, COMBINED WITH TUBERCULOSIS OF THE PLEURA AND PERIBRONCHIAL GLANDS, WITH SOME REMARKS ON THE QUESTION OF MULTIPLE PRIMARY GROWTHS IN GENERAL AND THE ASSOCIATION OF TUBERCULOSIS AND CARCINOMA.

BY

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Adenocarcinoma of the Pyloric end of the Stomach; Fibromyoma of the Stomach; Carcinoma Simplex of the Right Breast; Active Tuberculosis of the Left Pleura and Peribronchial Glands.

The subject of multiple primary growths occurring in more or less widely separated parts of the body is one that has attracted some little attention of late, and apart from the intrinsic interest of the condition has an important bearing on the theory of tumour formation.

It is, of course, within the knowledge of everyone that multiplicity is a common feature in the case of certain growths, fibromata and lipomata, in fact so common as to be the rule rather than the exception. This is particularly true with regard to tumours in such organs as the skin and uterus. Instances of the simultaneous occurrence of two primary growths of different type, as for example a fibroma of the uterus with a carcinoma elsewhere, are perhaps less frequent, but are still sufficiently common not to excite remark. The association of two malignant growths of different type and separate origin, or of three or more primary tumours is decidedly rare. The fact that such cases are not more frequently reported is perhaps to be explained on the view that pathologists have not assumed a sufficiently sceptical frame of mind, so that where multiple growths are discovered in various parts of the body, they have jumped at the conclusion that lay to hand that these were simply expressions of metastasis. This, of course, does not necessarily follow, and careful study would no doubt in some cases at least shew that a mistake had been made. The literature on the subject is by no means large, but a few suggestive papers have appeared at various times, notably one recently from the J. H. R. Molson Laboratory of Pathology at McGill University (P. G. Woolley. The Boston Med. and Surg. Journ., Jan. 1, 1903, p. 1). Now that special attention has been directed to this important subject, we may expect interest in it to grow. Woolley has fairly fully analyzed the cases hitherto recorded and has described a few additional ones from the pathological department of

the Royal Victoria Hospital. To these I am enabled to add in the present communication.

In 685 autopsies of which I have notes, multiple primary growths occurred in 18 instances. These were divided as follows:

1, 2 and 3.—Bilateral Cystadenoma Malignum of the Ovaries, 3 cases. (Two of these reported by Dr. Woolley, loc. cit.).

4.—Bilateral Carcinoma of the Suprarenals, 1 case. (reported by Dr. Woolley, loc. sit.).

5.—Bilateral Sarcoma of the Ovaries. Fibroma Mammæ. 1 case. (See Martin and Hamilton, Journ. Exper. Med., 1896, Vol. 1, No. 4).

6.—Bilateral Carcinoma of Breasts. Lipoma of Right Kidney. (R. V. H. 85--00).

7.—Angiosarcoma Cerebri. Endothelioma Pleuræ and of Liver Capsule. (See Woolley, loc. cit.).

8.—Adenocarcinoma of Rectum. Carcinoma of Pancreas. (R. V. H. 13/00).

9.—Carcinomata in Cæcum and Rectum. Fibroid of Uterus. (R. V. H. 80/00).

10.—Adenocarcinoma of Stomach. Carcinoma Simplex of Breast. Fibromyoma of Stomach. (R. V. H. 68/02.((Here reported in full).

11.—Carcinoma of Bronchus. Fibroid of Uterus. (R. V. H. 77/95).

12—Carcinoma Ventriculi. Fibromata of Kidney. (R. V. H. 29/96).

13.—Carcinoma of Urinary Bladder. Subcutaneous Lipoma of Trunk. (R. V. H. 83/96).

14.—Adenocarcinoma of Bile-Passages. Fibroid of Uterus. (R. V. H. 78/00).

15.—Scirrhous Carcinoma of Breast. Fibroid of Uterus. (R. V. H. 6/01).

16.—Carcinoma of Oesophagus. Fibroma of Kidney. (R. V. H. 7/01).

17.—Endothelioma of Meninges. Adenoma of Thyroid. (R. V. H. 24/01).

18.—Adenocarcinoma of Uterus. Fibroid of Uterus. (R. V. H. 7/02). 1 each.

The combination of fibroids in the uterus or elsewhere with other tumours is so common that no extended remarks need be made upon the subject, but I will only refer to the more important of the cases just presented.

The first is that of Mrs. A. B., aet. 67, (autopsy R. V. H. 68/02.).

Complaints: Pain in the side and swelling of the legs.

Family History: One brother died of cancer.

History of Illness: Began one year previous to admission to hospital with pain in the abdomen. Eight months later vomiting set in and continued three of four times weekly since. In two months more the abdomen began to swell, as well as the legs which have remained permanently thus. Twenty-six months before her death, or more than one year before the onset of symptoms, she had noticed a tumour in the abdomen.

Condition on Admission: An emaciated, feeble, old woman. In the right breast was a hard, nodular, and somewhat movable tumour, measuring one by two inches. Moderate arteriosclerosis. Signs of fluid in the left pleura. Occasional vomiting. The appetite was poor, the bowels constipated, and the abdomen considerably distended. On palpation, a hard, nodular, and somewhat movable mass could be felt between the ensiform cartilage and the umbilicus. The percussion note over the tumor and in the flanks was somewhat dull. The stomach contents contained no free hydrochloric acid. Total acidity, due to lactic and butyric acids, was 49%.

Autopsy.

Anatomical Diagnosis: Adenocarcinoma ventriculi: carcinoma simplex of right mamma: fibromyoma of stomach: left tuberculous pleurisy with effusion: compression atelectasis of the left lung: caseous tuberculosis of the peribronchial glands: senile kidneys: bilateral old pleural adhesions: decubitus: kyphosis and scoliosis.

Right Breast: In this there was a firm, lobular, tumour, measuring four by two c. m. The glands in the right axilla were enlarged to the size of peas. Microscopical examination of the growth proved it to be carcinoma of simple type, consisting of numerous strands and nests of epithelial cells of polymorphous appearance, embedded in fibrous tissue which in some few places presented a somewhat hyaline appearance. The carcinoma cells were round, oval, or irregular in shape. For the most part the sections showed a very diffuse cellular new-growth with relatively little connective tissue. In some areas the new-growth was seen to be massed about the vessels, and in one spot there was malignant infiltration of a vessel wall. One small arteriole contained a few carcinoma cells. Everywhere the cell masses were solid without any tendency to form lumina.

Left Lung: The pleural surface was studded with small greyish nodules the size of split peas. On section these were distinctly caseous. The peribronchial glands were much enlarged and caseous. Smears from the cut surface shewed the bacillus tuberculosis. Microscopically, the glands showed advanced caseous tuberculosis. The pleura showed in-

flammatory hyperplasia with organization and was diffusely infiltrated with round-cells. Here and there caseous foci with giant-cells were noted.

Stomach: The cavity of the stomach was almost obliterated, being occupied by a large new-growth situated on the lesser curvature, measuring 10 c. m. in diameter. This was roughly ovoid in shape, reaching to a point one inch above the pyloric ring, and projecting considerably as a fungating, cauliflower-looking mass into the cavity of the organ. Microscopically, this was produced by a tremendous overgrowth of the glandular elements of the mucous membrane. The gland tubes had run wild, being enlarged, tortuous, and branching. In some cases the tubes were enormously dilated and filled with colloid material. In some parts irregular acini were produced lined by stratified columnar epithelium. There was a distinct tendency to colloid degeneration of the cell masses. In other places solid nests of cells were noticed. There was abundant round-celled infiltration between the cancer masses. Where the tubules presented more of the normal type they were lined by a single layer of short columnar cells, but in the advancing portion of the growth the cells tended to be irregularly heaped up and were not so distinctly columnar. The muscular wall was considerably hypertrophied.

From the greater curvature of the stomach, at the posterior part of the fundus, depended a dense globular tumour, 8.5 c. m. in diameter, about the size of a cricket- ball, attached by a short, thick, ribbon-like pedicle of connective tissue. This tumour was warty on the surface, of a mottled grey and brown colour, with numerous flattened plaques of a pearly hyaline appearance. On section the mass was extremely firm, fasciculated, and of greyish colour, not unlike a uterine fibroid. Here and there were opaquer spongy areas of degeneration and also some extravasation of blood. Microscopically, the tumour consisted in the main of interlacing bands and irregularly disposed bundles of unstriped muscle enclosed in a fair amount of dense connective tissue. The growth was rather vascular and in places there was considerable hæmorrhage into its stroma. Areas of coagulation necrosis could also be seen with a slight tendency towards mucoid degeneration of the fibrous tissue. The cartilaginous-looking plaques on the surface were found to be hyaline connective tissue.

It might at first be thought that the nodule in the breast was a metastasis from the growth in the stomach, but on consideration it will be seen that there are several objections to this view. In the first place the tumour in the stomach had remained singularly local, there being no evidences of cancerous involvement of the peritoneum, the glands

in the neighborhood, the retroperitoneal tissues, or the portal vein. In the absence of cancerous involvement of the retroperitoneal tissues about the great vessels, or in the pleura, it is not easy to see how metastatic invasion of the breast could have occurred, seeing that it would have to take place through the long thoracic or internal mammary arteries. Only a few glands were found enlarged in the thorax and these were on the *left* side over the internal mammary artery. Further, the breast is a most unlikely site for metastases from a stomach growth. In eighteen cases of carcinoma ventriculi of which I have notes there is not one in which this occurred, even where the secondary deposits were most extensive. The extension of the malignant growth from the stomach is usually to the lymph-glands about the stomach, pancreas, and hilus of the liver, and I have been struck with the frequency with which the process invades the retroperitoneal tissues, and that early in the disease. Cancerous emboli in the portal vein with subsequent invasion of the liver and lungs are also common. A generalized dissemination of the cancer cells through the great vessels I have never seen. It is true that in a small arteriole in the midst of the cancerous nodule in the breast carcinoma cells were observed but these can be as well explained on the supposition that the new-growth had invaded the vessel from without, as was indeed observed in one place. A further point, although on this I would lay less stress, is that the growth in the mamma was of distinctly different type from that in the stomach, being composed of polymorphous and not columnar cells, which showed no tendency to form lumina, as is so strikingly the case in adenocarcinomata of the alimentary tract. The secondary growths originating from a colloid growth are particularly liable to be colloid also, yet there was no suggestion of this. The enlarged glands in the axilla could be just as well explained as being metastases from the mammary growth as from the stomach, or they might have been tuberculous. Unfortunately they were not removed for examination. On the whole, therefore I strongly incline to the view that the growths in the breast and stomach were separate and distinct, although, no doubt, the demonstration only amounts to a reasonable presumption.

In the case of cancer of the rectum with cancer of the pancreas, (case 8 supra.), the proof was quite clear. The growth in the bowel was the ordinary tubular columnar-celled adenocarcinoma: that in the pancreas was only just beginning, being found accidentally, and the connection of the carcinoma with the acini was quite manifest.

In the instances where two separate growths were found in bowel (9 supra.) it is possible that one may have been an implantation from the other, but I know of at least one case where there was a small

cauliflower-looking papilloma, which on microscopic examination proved to be as yet benign, while a short distance below was a much larger but similar growth which was distinctly cancerous. Here it was obvious that the cancer had originated in an ordinary papilloma separate entirely from the first. A somewhat similar instance has been recorded by Hauser (Deutsches Archiv f. klin. Med., LV.).

The sixth case mentioned above was an undoubted example of two separate and distinct primary growths. Here there was a rapid development of scirrhous cancer in both breasts, which were equally and uniformly enlarged by a dense central growth, which eventually spread to the thoracic wall, converting the soft tissues into a firm cuirass-like growth of cancer. Here there was to my mind no possibility of implantation from one part to the other or of metastasis.

It will perhaps help us to a proper apprehension of the principles underlying the production of multiple new-growths if we can classify them into groups, and without attempting any elaborate system, I would suggest the following as a simple yet comprehensive view of this subject.

(1) Multiple Malignant Tumours, affecting

(*a*) One and the same organ.
Examples of these are furnished by the mixed carcinomatous and sarcomatous tumours of the thyroid gland, as recorded by Loeb (*Amer. Journ. Med. Sc.*, Feb., 1903) and Gideon Wells (*Journ. of Path. and Bacter.*, June, 1901). Also carcinoma and sarcoma in the uterus.

(*b*) Different portions of the same system, or its embryological derivatives.
Examples: case eight of my series; myelomata.

(*c*) Both members of a pair of organs.
Examples: cases one, two, three and four of my series.

(*d*) Different systems.
Example: case seven.

(2) Multiple Benign Tumours.

(*a*) In one and the same organ.
Example: fibroids of the uterus.

(*b*) In different portions of the same system.
Examples: submucous polypi in the intestines; fibromata and lipomata of the skin.

(*c*) In both members of a pair of organs.
Examples: fibromata of the ovaries or kidneys.

(*d*) In different parts of different systems.
Example: Angiomata of the skin and internal viscera.

(3) Combinations of Benign and Malignant Growths.

Examples: cases five, six, nine, ten, eleven, twelve, thirteen, fourteen, fifteen, sixteen, seventeen and eighteen.

Before we can be certain that we are dealing with true examples of multiple primary growths we must be able to exclude metastasis, extension by continuity, implantation, and transplantation. We may indeed be able to draw positive conclusions if we accept the three postulates of Billroth, which are: (1) Each carcinoma must have a different histological structure; (2) The histogenesis of each carcinoma from a different parent epithelium must be proved; (3) Each carcinoma must form its own mestastases. Yet without doubt these requirements are so rigid as to bar out a great number of positive examples, and, with Woolley, I think we may disregard them, and base our opinions on a much less iron-bound formula. It is self-evident that it is not necessary for multiple primary growths, even of carcinomatous or sarcomatous nature to differ in histological structure. The second postulate is one that would in some cases be impossible of proof, nor is it any more necessary than the first. Then again, the growths may not be sufficiently advanced to have produced metastases, and yet these are the cases where we are best able to determine the point of origin with certainty. In short, the postulates demand too much. In deciding the question we should be guided chiefly by the histological structure of the tumours, their localization, our knowledge of the course of metastases in special cases, and the analogy existing between these combined cases and the ordinary development of tumours in simple cases.

The bearing of this subject on the larger one of the causation of tumours in general is of interest but too great a question to enter upon fully here. It is clear that in many cases irritation plays a subordinate part if indeed it enters into the question at all. Cases such as the malignant adenomata affecting both ovaries simultaneously suggest an origin in some developmental vitium, such as embryonic "cell-rests," but admitting this we must still go farther back in our search for the cause. In fact, the theories of Ribbert and Cohnheim, and the parasitic theory are in no way strengthened from our study of multiple growths. Woolley has pointed out that in some instances certain organs that are functionally connected are the sites of simultaneous tumour growths. This "systemic affection" is well illustrated in a case recorded by Walter (Arch. f. klin. Chir. 1896, LIII.), where there were present an adenocystoma of the ovary, cancer of the breast, and cancer of the uterus. This would point to some grave physiological vitium underlying the process. But when we have said this we have

practically said all. We are brought back to the old story of a cancer "diathesis" or what is much the same thing the supposition of multiple regions of predisposition. We are as far as ever from comprehending the ultimate cause of tumour formation.

The association of active tuberculosis and advanced carcinoma is worthy of more than passing reference, as it is a subject of ever present interest to clinicians and has an important pathological bearing. The interest in this question dates back almost fifty years to the days of Rokitansky who stated that "an antagonism prevails between tubercle and carcinoma. Whenever their general correlation is susceptible of proof, cancer has succeeded to tuberculosis." Owing to the perfection of the microscope and the discovery of the specific bacillus of tuberculosis, any confusion between the lesions of the two diseases has long since been done away with, and the general result of later observations has been on the whole to strengthen the position taken by the great Viennese pathologist.

The most recent writer, MacCaskey (*Amer. Journ. Med. Scien.*, July, 1902), concludes that "apparently some antagonism existed between the presence of the toxins of tuberculosis and the conditions favourable to the development of cancer," and my own observations lead me also to a belief in some such antagonism.

In 685 autopsies at the Royal Victoria Hospital of which I have notes, tuberculosis occurred 234 times. It is of course well known that tuberculosis is a disease of the early part of life while carcinoma is found after middle age. Taking forty years as the age limit between the two diseases, in 60 persons who reached the cancer age of 40, who had active or latent tuberculosis, 10% developed carcinoma. In 243 non-tuberculous persons of the cancer age of forty or over, 22.22% were found to have carcinoma. In 65 persons over forty who had carcinoma 9% developed active or latent tuberculosis. Of 279 non-cancerous persons over forty 19% had active or latent tuberculosis. This would appear to be conclusive as to a mutual antagonism between the two diseases. Full-blown tuberculosis and carcinoma were found associated in 4.88% of carcinoma cases, a considerably larger proportion that the figures given by Williams (1.45%) in his article on the pathology of cancer in volume XVII, *Twentieth Century Practice.* Combining the figures given by Lubarsch, Zahn, Moak and myself, in 4,791 autopsies in which active tuberculosis was found carcinoma was present in 23 instances, a proportion of about 4.23%. It will thus be seen that the association of the two diseases in the early stages is much less frequent than the combination of carcinoma with latent and obsolescent tuberculosis, and this is in general accord with the published observations.

It is interesting that the simultaneous occurrence of tuberculosis and carcinoma in cattle when carcinoma is so rare, has also been noted. (Loeb and Jobson, Medicine, April, 1900).

The second part of Rokitansky's postulate is more difficult of proof. From *a priori* considerations its correctness would, however, seem very probable. Tuberculosis is notably a disease of childhood and the active period of life. The average age in simple tuberculosis in my figures was thirty-four. Carcinoma is still more preeminently an affection of the degenerative period. In sixty-eight cases only three were under forty. About a third of the tuberculosis patients reached the cancer age, a sufficiently large number to render the association of the two diseases with some frequency quite a possible event. In the few cases I have seen I have not been able quite to satisfy myself as to which disease began first, although I am inclined to think that in all cases the tuberculous infection was antecedent. It is difficult in many cases to be sure of the age of a tuberculous process from the gross appearance of the lesions, for the disease may remain latent for years in the glands before an active process is inaugurated. From our general knowledge of tuberculosis, however, we recognize that it commonly begins in early adult life and lasts for years, so that when carcinoma does occur in such patients, it is much more likely to be superadded to the tuberculosis than the reverse. This view is also supported by the fairly numerous instances recorded where carcinoma has developed in the lesions of lupus of the skin, cases which Ribbert has cited in support of his theory that the exciting cause of carcinoma is to be found in irritation or inflammation. The few cases described where tubercle bacilli have been discovered in a carcinoma do not negative this general conclusion for the infection is not primary but traceable to a previously existing tuberculous lesion somewhere else in the body. Considering the great frequency with which the two diseases, tuberculosis and carcinoma, occur, it is surprising that they are not more often combined. In what the relative antagonism exists is hard to say. It is clearly not a question of age, for as I have shown tuberculosis is common enough in advanced life, and we can eliminate the age factor without upsetting our general conclusion. It can, farther, be scarcely due to a condition of the soil, for in this case we would expect that where persons had suffered and recovered from tuberculosis they would be less susceptible to carcinoma, but as a matter of fact healed tubercular lesions are proportionately as common in cancer patients as in others. Either, then, considering that the antagonism only exists where there is active or latent tuberculosis, the antagonism

is not one of the soil or else the immunity is but a transient one. Default of a better explanation, we have to fall back on the view that there is a relative incompatibilty between the toxins formed in tuberculous lesions and reaching the blood and the metabolic products of cancer growth.

The following papers contain practically all the references in connection with the subject of multiple primary growths:

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H. Gideon Wells. Multiple Primary Malignant Tumours. *Journ. Pathol. and Bacter.*, June, 1901.

Woolley. Notes on Multiple Primary Tumours. *Boston Med. and Surg. Journ.*, Jan. 1st, 1903.

Loeb. Mixed Tumours of the Thyroid Gland. *Amer. Journ. Med Sc.*, Feb., 1903.

THE EARLY DIAGNOSIS OF PULMONARY TUBERCULOSIS.*

BY

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Introduction.

Every means at our command should be employed to establish the diagnosis of pulmonary tuberculosis. In hardly any other disease is the importance of an early diagnosis so necessary. Time is everything, and the earlier the disease is detected the more hope there is of cure. Too often a diagnosis is first made when the best time for cure has slipped away. In advanced cases almost anyone can recognize the disease from the cough, expectoration and emaciation, but at the onset the symptoms are often obscure and less characteristic. In what follows I desire only to remind you of how one should proceed in a systematic way to make the diagnosis early.

History.

We should be uninfluenced by apparent good health in a patient. If he seems robust and comes from a sound family, many physicians hesitate to make a diagnosis of phthisis. An accurate history of the manner of onset should be obtained, and a careful search made for any precursory symptoms. From the history alone one sometimes makes a diagnosis even though there are no physical signs in the chest, no tubercle bacilli in the sputum, and though an animal experiment results negatively.

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* Read before the Montreal Medico-Chirurgical Society, 17th April, 1903.

Precursory symptoms sometimes give us a strong clue, and of those which are particularly important, the most frequent are loss of weight, hæmoptysis, pleurisy, ischiorectal abscess, bone and gland disease, and colds accompanied by coughs which persist unusually long. Any one of them may have occurred years before. For example, a woman of 67 spat some blood-tinged sputum in which tubercle bacilli were found. She also spat blood thirty-two years before, and, during the interval had no symptoms of tuberculosis.

One also derives great value from a searching history which embraces not only the family but also the associates of the patient. Cornet and most other writers do not recognize a specific hereditary disposition for tuberculosis. Children of tuberculous parents come into the world weaker than those from sound parents. By tuberculous parents I do not mean those who were once tuberculous years before, but such as at the time of conception had more or less advanced disease. There are no proofs that this weakness differs in any way from that which children of very delicate parents show, or from the weakness which is acquired during life from any harmful influence and makes the individual more susceptible to any kind of disease.

A history which merely states that a case of tuberculosis occurred in the family, even if this should be one of the parents, is of no value if it does not also state when the person concerned was sick and when he died, how the sputum was disposed of, and what amount of cleanliness was maintained in the room. To be of value it should inquire into the conditions of infection, and as to how long the newly diseased was with the former diseased person. If we obtain no history of contagion in the patient's family, we should inquire if the patient had been exposed to tuberculous persons among his associates either in workshop, school, office, or any occupation. The exaggerated notion of the influence of hereditary predisposition and the acquired weakness has produced injury to many persons.

Modes of Onset.

It is of great importance to know the modes of onset. Though the early symptoms are frequently masked, yet in the majority of cases they point directly to the lungs.

The most frequent mode of onset is a bronchitis, the prominent symptom of which is cough. For a long time the patient consoles himself that it is an ordinary cold. This is due to the fact that he does not feel at all ill, and it comforts him to know that many persons suffer from a harmless bronchial cough for years, or even for a lifetime, and yet remain healthy. The physician must think

otherwise. A cough which lasts longer than several weeks, or which tends to return, or which is usually present during the winter months, is always a suspicious sign, and should make us consider the possibility of tuberculosis.

At the onset of phthisis the cough is almost always dry and irritable and very obstinate, or it may consist of paroxysms of cough, or be accompanied by vomiting. It is most pronounced when the patient awakes in the morning, or when he lies down at night. Through the day it is often produced by loud speaking or laughing, or even without cause. It is also brought on by a deep breath. Many such patients also suffer from a nasopharyngeal catarrh and frequent colds, the colds having a tendency to go to the chest. Sometimes asthma is an early symptom.

In by far the majority of cases a hæmoptysis represents an existing tuberculosis, but it may not be due to this cause. It may occur as a result of circulatory disturbances, and may occasionally compensate or accompany hæmorrhoids or the menses. Hysterical persons may also for weeks at a time have blood tinged sputum and have sound lungs. So also after violent muscular exercise of any sort and after a trauma, a hæmorrhage can occur without being due to tuberculosis. When from the nose and mouth, the bleeding is usually insignificant, and can be recognized by a careful examination. Sometimes also when in larger amount it may be confounded with a hæmatemesis. But, if a patient feels a tickling in the throat, and after a cough expectorates frothy blood consisting of one, two, three or more teaspoonfuls, the physician will seldom make a mistake, if he considers it due to tuberculosis and treats it as such. "The classical hæmoptysis, that which is indicative of the onset of tuberculosis, is a bloody expectoration brought up for several consecutive days, usually in the morning, after cough." When the blood is small in amount, the patient is often told that it is from the throat, and is advised to continue at work till something further develops. This delay is frequently disastrous, and many lives are lost by such advice. The blood is usually not from the throat, but from the chest, and it should be regarded as an evidence of tuberculosis, till we have strong grounds for considering it due to some other cause.

The close relationship between a simple or idiopathic pleurisy and phthisis has long been known. Idiopathic pleurisy, whether we meet with it in the dry form or with effusion, is a common disease. The dry and exudative forms are evolution forms of the same disease, for not only pathologically but anatomically and clinically, the transition from one to the other is frequently observed. By an idiopathic pleu-

risy is meant a primary disease of the pleura, the cause of which cannot be explained. It is sometimes called the pleurisy of Landouzy. The term idiopathic is only a makeshift for our defective knowledge of the etiology.

When we meet with such pleurisies, whether they are dry or exudative, the question at once arises: how are we to consider them? Are we to agree with Landouzy, who stated that 98 per cent. of the sero-fibrinous pleurisies are tuberculous, and that every pleurisy, the cause of which cannot be explained, is tuberculous? Or does the pleurisy merely smooth the way for phthisis; this being brought about by the adhesions of the pleura, by the long compression of the lung, by the continued repose of the fallen thoracic walls, so that places of less resistance are produced which allow the tubercle bacilli to develop? Penzold's view is probably the one most applicable to this question. He considers as suspicious of tuberculosis every man with pleurisy.

The views of Landouzy and Penzold may seem extreme, but the following facts corroborate them to a considerable extent: Of 90 cases of pleurisy with effusion, the histories of which were followed by H. I. Bowditch, one-third developed pulmonary tuberculosis. Of the cases of pleurisy tested with tuberculin by Marcus Beck, 73.2 per cent. reacted positively.

Fever as an early symptom is one with which all physicians are acquainted, and an exact knowledge of it is one of the most important points for the diagnosis. The normal maximum varies in different individuals. In many it hardly reaches 98.4, whilst, in others it almost goes to 99.5. As the earlier temperature of our patients is unknown, probably 98.4 to 98.8 F. can be considered as an average maximum. An increase over 99.5 should be considered as a febricula. A two hour record is necessary to determine if fever be present, as otherwise a rise may be missed. The temperature may be taken by the patient, or better, by some member of the family. A slight afternoon rise to 99.9 or 100, which persists, and is assignable to no cause, should make us suspect tuberculosis, especially if it is accompanied by loss of appetite, loss of weight, and weakness. Sometimes the disease sets in with high fever and simulates typhoid, or with chills and fever and is then regarded as malaria. These cases should be especially watched during convalescence from the supposed disease, and the lungs frequently examined, for signs often do not develop until then.

In persons with chlorosis and especially in young girls latent tuberculosis should always be considered as a possible cause. All the symp-

toms of genuine chlorosis mey be present, and the distinction between a real chlorosis and a tuberculous pseudo-chlorosis can be made only with difficulty. Emaciation can occur in both cases, though an increase in fat is more frequent in real chlorosis. The difference in the color of the skin possesses a doubtful value. Fever is frequently present in chlorosis, whilst the incipient stage of pulmonary tuberculosis is often free from fever. Even the blood, in the incipient stage of tuberculosis may give similar results to the chlorotic blood. An acurate history can occasionally give us an important point of distinction: namely, by establishing the opportunity for infection. Previous scrofulous glands point to tuberculosis. The tuberculin test, however, is our most important means of distinction. A failure to react permits one to exclude tuberculosis with a fair amount of certainty. The value of the test in these cases is emphasized by the figures of Marcus Beck who found that 50.3 percent of chlorotics reacted to tuberculin.

The onset with dyspepsia is very common, and the early symptoms may be great irritability of the stomach or a type of acid dyspepsia. Occasionally it is difficult to distinguish this from pure nervous dyspepsia, but in the latter the loss of appetite is usually less complete. When slight evening rise of temperature and loss of bodily weight accompany the dyspepsia, one should suspect tuberculosis. In nervous dyspepsia the weight may remain normal as assimilation goes on normally.

In some instances huskiness and laryngeal symptoms are the first prominent features of the disease. When they persist unusually long and do not yield to treatment, pulmonary tuberculosis should be considered as a possible underlying cause.

Neurasthenia is a common symptom of many cases of phthisis. It may be the first symptom and be so great as to entirely mask the real trouble.

Pain in the chest may precede other symptoms by months or even years. I am more and more struck with its great frequency as a very early sign. Cough and pain are probably the most frequent early symptom. When first felt the physician usually regards it as rheumatism, pleurodynia, or intercostal neuralgia.

At this time there is frequently no rub to be heard at the seat of the pain, and for this reason pleurisy is excluded.

It is often described by the patient as a stitch, and occurs particularly after such acts as sneezing, blowing the nose, fast walking, or laughing. It is more apt to be felt in damp weather, or when the patient is suffering from a cold in the head. Later on, should the disease develop, that side of the chest in which the pain is felt will have evidence of disease. It is most commonly felt under the shoulder blade,

though it may be felt in any part of the chest. It is usually localized, and when it recurs, tends to recur in the same place. Occasionally, however, it radiates to the shoulder joint and upper arm.

A fast pulse is a very striking and frequent symptom of phthisis. If fever exists, an increase in the pulse is accounted for by it. It may, however occur entirely independent of fever, and it should then especially in young persons awaken the suspicion of tuberculosis. At the onset the pulse is more easily excitable, and the acceleration occurs after meals., or after slight bodily exertion as stooping or walking. Towards evening there usually occurs an abnormal frequency of 90-100. As the disease advances there often remains a certain increase in the frequency of the pulse at rest, and and a further increase is caused by the factors already mentioned.

A very frequent early sign is shortness of breath which is observed as light dysponea on going up stairs, climbing mountains, dancing, or similar bodily exertions. Sometimes the dysponea takes the form of an asthmatic attack and occurs in the middle of the night.

Physical Examination.

Though the history should give no support for tuberculosis, the lungs should always be examined if the complaints of the patient point to them even indirectly. The physical examination still remains the most important physical means for the early diagnosis of phthisis. The tuberculin test is the most searching test we have, and is our final court of appeal, but it is at the command of only comparatively few. The physical examination is at the command of every physician, and correctly used it permits us to form a definite conclusion in many cases where the expectoration is free from tubercle bacilli.

I shall not go into the details of physical examination. We should always keep in mind, however, that the first signs of incipient pulmonary tuberculosis—depression, feeble breathing, prolonged expiration and râles,—are almost always to be found in the apices. The tops of the lungs should therefore be examined with the greatest care, and every deviation from the normal should be considered as suspicious of disease. Though comparatively seldom, the first tuberculous deposits can occur in other places, and one should therefore always extend the examination over the whole chest. It is well to remember that râles are often only produced by cough followed by a sharp deep inspiration.

Examination of the Sputum.

The simplest way to confirm a diagnosis is to find tubercle bacilli in the sputum. It should be our aim, however, to detect the disease before bacilli are present, for when they can be repeatedly demonstrated

without trouble we are, as a rule, not dealing with an incipient case. Repeatedly finding numerous tubercle bacilli in a copious sputum permits one to conclude that destruction of lung tissue has already set in.

At the onset of the disease expectoration is seldom present. At best there is expectorated in the morning a tenacious mucous from the upper air passages, and tubercle bacilli are rarely found in it. To obtain an expectoration from the lung, the cold water compress is of service, and can be used in the form of the German Kreuzbinde. This consists of cold water compresses covering the front and back of the chest, and kept in place by straps or bands which pass round the neck, across the chest, and under the arms. It is applied at night, and remains on till morning. On removing it the chest and back are quickly rubbed with a cold wet towel. The shock excites the patient to cough, and the secretion which collects from the moist warmth of the packing is now expectorated.

Should bacilli not be found, the sputum should be collected for several days and then treated in one of the following ways in order to homogenize it. Moeller's plan is to pour the sputum into a glass cylinder and add a little water. He then throws in a number of coarse gun shot and thoroughly shakes the whole mixture. After removing the shot, he centrifugates the homogenized mass and seeks in the sediment for tubercle bacilli. E. W. Hammond strongly recommends the carbolic method. His modification of the method consists in adding an equal volume of 5 percent carbolic acid to the sputum and then briskly shaking the mixture for a few minutes; by this means the mucous is broken up and disintegrated. It is then allowed to settle. Sedimentation takes place rapidly, and within an hour an examination can be made. He then uses a pipette of small calibre and examines the deepest portion of the sediment in the usual way.

A third method was that used by the late Coppen Jones of Davos. He took ½ gramme of trypsin and rubbed it up in a mortar with ½ per cent. sodium carbonate solution, then transferred the sputum to this and added a few drops of phenolthalein, and allowed to stand for twenty-four hours. Should at any time the phenolthalein decolorize, add more sodium carbonate, until the pink color disappears. When digestion is completed, centrifugate and examine for tubercle bacilli.

Biedert's method consists in mixing with a glass rod in an evaporating dish, 15 c.m. of expectoration, 30 c.m. of distilled water, and 4-8 drops of sodium or potassium hydrate; then slowly boiling and at the same time gradually adding 60-90 c.m. of distilled water; then

sedimenting in a conical glass for twenty-four to forty-eight hours. When examining the sediment it is often necessary to add some albumin or some of the sputum of the patient to fix the specimen.

A further means of help is that known as the "enriching method," and is due to the fact that an increase of tubercle bacilli takes place at incubator temperature. The increase ceases in about forty-eight hours. Perhaps the best known enriching method is that known as "Hesse's." For a full account of this, one is referred to the *Zeitschrift für Hygiene*, July 31st, 1899.

Hesse's medium consists of:—

Heyden's Nahrstoff	5 grm.
Salt	5 "
Glycerine	30 "
Agar agar	10 "
Normal soda solution	5 C. Cm.
Distilled water	1000 " "

The method consists in putting about 20 cm. of the culture medium into a double Petri dish. Immediately before the experiment, the patient spits into a sterilized glass. Previous rinsing out of the mouth is unnecessary. One then takes from the sputum by means of a strong platinum wire a piece of purulent mucous the size of a lentil, and draws it in a circle on the surface of the culture medium. About forty-eight hours later remove the dish from the incubator, and examine the mucous for tubercle bacilli.

Moeller's enriching method consists in spreading on the bottom of a Petri dish several flecks of sputum. To prevent the sputum from drying he puts the dish into a moist chamber, and places the whole in the incubator at 37° C for forty-eight hours. He finds that the tubercle bacilli are most easily found when the under surface of the sputum is examined.

Animal Inoculation Experiment.

If one does not reach a positive result by these methods, an animal experiment remains. The guinea pig is the animal of choice.

To do an animal experiment the following directions may be of value. To establish the tuberculous nature of a fluid, or of a substance which can be emulsified into fluids, the intraperitoneal method is always preferable. This allows the smallest number of living bacilli to be developed, excludes with most certainty every infection, and gives an anatomical picture which differs most characteristically from a spontaneous affection of the animal. A small surface of the ab-

domen of the animal should be shaved and thoroughly cleaned; then the infectious material which was obtained under aseptic precautions, is diluted in about 2-3 c.m. of sterile fluid, and is injected by a sterile syringe into the peritoneum. The seat of injection is closed by collodion. If there are likely to be numerous living tubercle bacilli in the material injected, the animal is killed in three to four, rarely in seven weeks, and by the autopsy the tuberculous or non-tuberculous nature of the injected material is established.

With a material which cannot be well suspended in liquids, the subcutaneous injection is preferable. Prepare the groin of the animal as above; make a small slit in the skin with scissors; with a strong sterilized platinum wire make a pouch about 2 c.m. long between skin and muscles and beneath the fascia; make the material to be injected as small as possible and plant it in this pouch; cover the skin wound with collodion. In many cases a swelling of the inguinal glands on the affected side can be observed in 8-14 days. The animal is killed in five to nine weeks.

Tuberculin Test.

Should the animal test turn out negatively, one can take for granted with a fair amount of certainty that no tubercle bacilli are expectorated, or that they are very few in number. This fact, however, does not exclude the presence of tuberculosis, and the tuberculin test must give us the decision. It can be used in all those cases where by all methods of help, no tubercle bacilli can be demonstrated in the sputum, where at the same time there are either doubtful or no physical signs in the chest, but in which the suspicion of tuberculosis still exists. In the *Deutsche Medicinische Wochenschrift*, April 1, 1897, Kock says: "the most valuable property of tuberculin is, that injected subcutaneously in very minute doses, it gives rise to the characteristic reaction in persons and animals affected with tuberculosis. The use of tuberculin as a diagnostic agent, a fact which I emphasized in my first publication on tuberculin, has more and more held true in the course of time. The apprehension that, following the reaction, the tubercle bacilli might become unfettered and transplanted into healthy parts of the body, has proved to be futile in the many thousand injections into cattle made for the purpose mentioned. This fully agrees with my own experience in more than a thousand cases in which tuberculin was used for an early diagnosis of tuberculosis. Here, too, in not a single case could there be detected the slightest indication pointing to an unfettering of tubercle bacilli. With such experience at one's command one ought to abandon the silly prejudice

of the unfettered bacillus, and make use of the diagnostic value of tuberculin." Trudeau, also, who has used the test for years on suitable cases has never experienced any harmful results at the time or afterwards.

The advice given by Koch for the employment of the test for diagnostic purposes is as follows: "First the temperature of the patient is observed for at least one, better two days, in order to ascertain that the temperature vascillates under 98.6 F. Patients with temperature above that are not suitable for the diagnostic treatment with tuberculin, and should under no circumstances be subjected to the tuberculin test. When the patient is found suitable, then he gets in the afternoon, under the skin of the back, an injection of from 1-10 to 1 milligramme of tuberculin; delicate individuals get 1-10 milligramme, strong individuals with presumably slight tuberculous changes may receive 1 milligramme for the first injection. If no rise of temperature follows the first injection, then the dose is doubled, not however on the second day but on the third. If, however, the temperature rises only a little, say $\frac{1}{2}^{\circ}$ F., then the dose is not increased, but is repeated after the temperature comes down to normal. Very often it will happen that though the dose remains the same, the reaction will be much stronger. This is a particularly characteristic phenomenon of the action of tuberculin, and can be regarded as a sure symptom of the presence of tuberculosis. If, however, after the first low doses no reaction takes place, then they are increased up to 5 milligrammes, and then to 10 milligrammes. The last dose I advise for safety's sake to be given twice, and if after that no reaction appears, I consider myself justified in the opinion that there is no fresh or active tuberculosis present which would require any special treatment."

Marcus Beck begins with 1 milligramme even with weakly patients. In children under ten years he advises to begin with half a milligramme, and then inject 1 and 5 milligrammes. In children under five years he begins with 3-10th milligramme, and then injects 1 and 5 milligrammes.

Trudeau's method is really that of Koch's with slight modifications. The injections are given at night—as late as possible—since the reaction sets in as a rule about 12 hours later. In order to obtain a clear picture, he orders a two-hour temperature to be taken for several days before and following the injection. His solutions are made up of $\frac{1}{2}$ percent carbolic acid and are always used fresh. They should never be kept for longer than three days, and should be kept in a cool dark place. He begins with 1 milligramme, gives 3 milligrammes for the

second dose, and 5 or 7 milligrammes for the third. Moeller and Beck regard as a reaction an increase of 1° F., above the fixed normal temperature. The gravid uterus in the first six months, and the menses are not regarded by Beck as contra indications to the test.

When we stop at 5 milligrammes with no reaction, we only obtain an uncertain result. We should therefore always go to 7 or 10 milligrammes and never go beyond 10 milligrammes. My own experience with the tuberculin test now covers a period of seven years. I have used it in all those cases where I was unable to make the diagnosis by other means. It has been of great assistance, and I have never observed any ill results.

I need only mention one case to illustrate the great value of the test. A young man of 31 years came to the Adirondacks in the spring of 1902, complaining of cough and expectoration. Both had lasted six weeks when he spat some blood-tinged sputum. As the symptoms were accompanied by some loss of well being, a diagnosis of tuberculosis was made from the history alone. There were no physical signs in the chest and no bacilli in the sputum, and for these reasons the patient, who was a physician, was strong in the belief that there was no tuberculosis. Within three weeks the cough and expectoration had left him and he was then given the tuberculin test. The third dose of 7 milligrammes produced a reaction. After remaining three months in the mountains he went to Montana. A short time ago he wrote me that he had his usual spring brochitis, but that he was much above his normal weight, and was feeling in excellent health. The sputum which he sent for examination showed a few tubercle bacilli.

It is comparatively seldom that one needs to use tuberculin. In my own practice I do not use it more than twice a year. A similar number of times for its use occurs in the practice of my colleagues.

The communication of E. France at the London Congress illustrates the certainty with which tuberculin shows the presence of tuberculosis. He tested 55 persons in an insane asylum with tuberculin, and found that 45 of them reacted. Of those that reacted, 29 came to post-mortem at a later date, and every one was found tuberculous. Of those that did not react, 5 were examined post-mortem and every one was free from tuberculosis.

Agglutination Test, or Arlong-Courmont Method.

When it was known that the serum of animals that had been injected with bacteria, after a time possessed agglutinating power over the same bacteria, and further that human serum agglutinates typhiod, cholera and plague bacilli if the patients suffered from typhoid, cholera

or plague, it was then suggestive that the blood of tuberculous individuals would agglutinate tubercle bacilli. Tubercle bacilli, however, are an obstacle to a similar investigation, as they form in their cultures compact masses which are already to some extent in an agglutinated condition.

To overcome this difficulty, Arloing and Courmont cultivated the bacilli on potatoes, and finally obtained a culture that grew evenly distributed in the form of an emulsion in the glycerinated liquid at the bottom of the tubes. From these they finally obtained their homogeneous cultures. They tested these cultures with respect to their power to be agglutinated, and obtained positive results when they added blood serum, or serous exudates of tuberculous individuals or animals. With these two observers the test is so reliable that it can be used in practice for the early diagnosis of tuberculosis. Several French authors, and in Germany only Bendix, corroborated these statements.

The reaction of the serum, however, might fail in cases of undoubted tuberculosis, and occasionally appear in non-tuberculous cases. The method has been given a fair and unprejudiced trial by C. Frankel, Lubwosky, Neisser, Dieudonné, Horeika, Moeller, Beck and Rabinowitsch. All of these observers frequently obtained contradictory results, and they consider the method unreliable and not applicable for early diagnosis.

In his investigations into the relation of cattle tuberculosis to human tuberculosis, Koch attempted to use the agglutination test as a means of differentiating the two bacteria, and tried to follow the method of Arloing and Courmont. He found, however, that for practical use their method was too complicated, and that it did not give any uniform and reliable results. He, therefore, sought for another way to render the tubercle bacilli in a condition in which they can be agglutinated, and he accomplished this very simply and without the tedious treatment which Arloing and Courmont employed. He found that by his method every kind of culture can be made to agglutinate. He then improved the method by using powdered tubercle bacilli. This has the advantage that one can obtain a sure estimate from it, can weigh out accurate amounts, and can prepare a test fluid which always has he same composition.

He tested thirty tuberculous and seventy non-tuberculous patients. Taken as a whole, a distinct difference in the agglutinating power between the tuberculous and non-tuberculous patients did not appear. He considers the agglutination method for the diagnosis, and especially for the early diagnosis of tuberculosis, as of no value.

Röntgen Rays.

Occasionally one will make a surprisingly early diagnosis by the Röntgen rays. The shadow or the skiagraph shows tuberculous nodes much the more distinctly the older and more exensive they are, but it is less certain in the earlier stage. This is very natural, since cicatricial tissue and calcification offer greater resistance to the rays, whilst developing small nodes are either penetrated or are not visible on account of their size and position. There can be no doubt, however, that the X-rays are sometimes able to show a small tuberculous focus in the lung when a physical examination does not locate it. In skilled hands they are able to demonstrate really early tuberculosis, but in the vast majority of cases a physical examination forestalls Röntgen rays in proving change in the lung.

Examination by the radioscope and radiagraph shows a diminution in the clearness in some part of the lung, usually in the apex, often accompanied by a diminished descent of the corresponding half of the diaphragm. For a time the diminished descent of one half of the diaphragm may be the only symptom observed, and the lung may seem clear. It is, therefore, a symptom of importance. The extent of the lesioins is often better indicated by X-rays than by any other method of examination.

In conclusion, I wish to thank the members of this Society for the honour and privilege of reading this paper.

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TWO PRACTICAL DEDUCTIONS

From a Living Case of Tendon Grafting for a Deformity Resulting From Anterior Poliomyelitis.

BY

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Two years ago this boy was brought before you. He had been operated on three months previous to that time; one-half of the tendon of the Tibialis Anticus Muscle had been grafted into the most internal tendon of the Extensor Communis Digitorum of the foot, and the remaining half had been united to the tendon of the Extensor Proprius Hallucis. At the date of the operation the condition of his foot at rest was that of marked valgus. On attempted locomotion he walked with that limp, foot-drop, and swinging gait which is so characteristic of paralysis of the Anterior Tibial Muscle.

On electrical and clinical examination the following conditions were noted:—Tibialis anticus, little or no power; Tibialis posticus, little or no power; Extensors of foot, impaired in function; Extensor longus digitorum, normal; Peroneus tertius, probably normal; Extensor longus hallucis, normal; Peroneus longus and brevus, doubtful.

Three months after the operation when he was brought to your notice great hopes of improvement were expressed in these words: "By the improved position of the child's foot it seems probable that there has been perfect union of the tendons grafted, and although the patient's left leg is never likely to be in as good condition as that of his right, it can at least be hoped that the improvement will be progressive, as the Common Extensor and Proprius Hallucis muscles become stronger and better able to do not only their own work, but also that of the Anterior Tibial."

When these words were written it was hoped that the patient would be submitted for continuous treatment. Massage, active and passive exercises of the atrophid muscles were recommended, but the child

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* Read before the Montreal Medico-Chirurgical Society, 3rd April, 1903.

disappeared, and, instead of being brought before you to-night, to demonstrate a continuous improvement he is brought to illustrate two important facts in the consideration of surgical treatment for deformities following Anterior Poliomyelitis.

(1) The existence of a new or artificially placed tendon extending from the Common Extensor to the place of insertion of the Tibialis Anticus, which is so clearly seen on attempted flexion, demonstrates our ability to graft slips from a paralyzed to a non-paralyzed muscle, and the fact that these slips can certainly be expected to help to do the work of the paralyzed muscles.

(2) The fact that the same deformity exists to-day as was demonstrated two years ago draws our attention to the fact that although an

operation done, as in this case two years ago, may be surgically a success, from a practical standpoint it may not be successful.

This case, however, is not brought before you as a demonstration of the uselessness of these operations in the treatment of such deformities arising from Anterior Poliomyelitis, but rather as an illustration of our inability to improve these conditions by operative procedures alone; each operation must be followed by watchful care, massage, active movements and passive movements, both by the use of electricity and by manual force and proper supports, which will prevent contraction of the non-paralyzed muscles, must be employed or we cannot hope to materially improve the condition of those submitted to our care.

Whitman in speaking of these cases says: "As ordinarily performed the pre-existing deformity is over-corrected and the foot is then fixed in a plaster bandage for several weeks or months until the position of over-correction is so impressed upon it, that, on the removal of support,

functional success seems assured. This primary effect persists for a certain time, until the shortened tissues again stretch and the grafted muscle is subjected to the full strain of use, when functional weakness again becomes manifest. This partial relapse may be delayed or prevented by massage, exercise, and appropriate support; in other words, by the care that almost always makes a result in private practice better than in hospital work," ([2]), and again an English surgeon, Mr. Robert Jones, of Liverpool, states: "Operations if they are performed only attain their purpose, when followed by prolonged, intelligent, and carefully thought-out after treatment." ([3])

You have now seen this child twice within the past two years, and it is to be hoped that he will not be lost sight of again; in which case, I trust to have the pleasure of again bringing him before you, at intervals of one or two years in order that we may study the progress of this case.

In the meantime as regards the prognosis; examination to-day demonstrates a difference of about three inches in the circumference of the two calves. The circumference of the right thigh is about twelve and one-eighth inches compared with ten and three-quarter inches on the left. The power capable of being exercised by the Tibialis Posticus is, as it was two years ago, almost, if not entirely, nil. Can we expect any improvement? I am not without hope. I would like to aid the Tibialis Posticus, which has been proven by hyper-inversion to be even now capable of some action, by grafting into it a slip of some adjacent tendon, which, possibly at present, is tending by its strength to increase the deformity, and thus to convert a power for evil into a power for good. I would like to follow this operative procedure not with rest in plaster of Paris for three months as was done after the first operation, but, with rest in plaster for a few days only; and this treatment should be followed by a brace which will prevent the contraction of the non-paralyzed muscles and the consequent stretching of the newly formed tendon. During this period between the applications of plaster of Paris and on the removal of the brace, one should attempt to improve the general condition of the muscles involved, by massage, active movements and passive movements, made both by manual force and through the use of electricity.

1. Montreal Medical Journal, 1901.
2. Royal Whitman, New York Medical Journal, 26th May, 1902.
3. Robert Jones, Lancet, 14th March, 1903.

A CASE OF ACROMEGALY.

BY

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Oculist to the Montreal Dispensary.

Two years ago a gentleman, 50 years of age, came to me for consultation as to the condition of his eyes. He stated that he had suffered severely from rheumatism for some years and from intense headache. Two years previous to my seeing him, his eyes had been examined and a very unfavourable prognosis was given. After a course of treatment with medicinal waters he was much improved, but the old symptoms returned shortly previous to his visit to me.

Examination revealed marked atrophy of the left disc, the function of the eye being reduced to slight perception of light with the temporal half of the retina. The right disc was of bad color, vision, with correction, one-third of normal; the field for white was normal and green was not distinguished. At a later examination the right field was found contracted, especially on the temporal side. The condition of the left eye was probably due to pressure from an enlarged pituitary gland upon the left optic nerve, and the condition of the right eye, to some extent, to degenerative changes independent of pressure. Whilst examining the sphenoidal sinus for vidence of empyæma, I was struck by the enlargement of the tongue and great thickening of the uvula and fauces, so marked as to render examination of the post-nasal space a matter of considerable difficulty. These changes in connection with the thickening of the tissues abcut the face and the ocular condition, suggested a diagnosis of Acromegaly.

face and head were broad and massive, the cartilages of the nose enlarged and very wide, the lips thick, the lower one pendulous. There was a marked kyphosis in the uppr dorsal region, the sternum wide and thick, the abdomen round and protuberant, recalling the condition found in cretins. The hands and feet were much enlarged,the hands spade-like, the fingers being as thick at the end as at the first joint; the pad of tissue over the hypothenar eminence was fully an inch and a half in thickness. The patient had a peculiar dull and listless air and though the intellect was not impaired, the cerebration was slow and both animation and emotion were largely in abeyance. Generally speaking the case was characterized by an absence of marked change in the osseous system.

Naturally in considering treatment one would think of pituitary gland as a remedy, but as the patient's physician, Dr. Elder, had already placed him upon thyroid treatment, which was followed by

* Read before the Montreal Medico-Chirurgical Society, 3rd April, 1903.

marked improvement, and as published reports of the use of pituitary gland substance and of its various preparations were upon the whole unsatisfactory, this was not recommended. Under the treatment the patient lost weight and was almost completely relieved of his distressing headaches.

Shortly afterwards the patient proceeded to Berlin where the diagnosis of acromegaly was confirmed. He was given tablets of pituitary substance and a bottle of liquid—Iod-Thyrin, possibly—to be taken alternately, a month each, for six months. This time has not yet expired. At present, save for his eyes, he is very much improved in every way. He has lost weight, the face is nearly normal, although some thickening of the nose and lips remains. The cerebration is more active and the movements quicker.

A study of the pathological changes present in acromegaly inclines one to sum up the net result in the word "Confusion." Practically every tissue of the body undergoes more or less important change; but the lesions present in different cases are so diverse, that the possibility of variation in the etiological factors is at once suggested, and the question arises as to whether we are dealing with an entity or with a group of allied affections. Increase in the quantity of the blood in the body which is stated by some authorities to be present, from the large amount found post-mortem, may be the direct cause of some of the tissue change. The rare condition of true hypertrophy of glandular tissue is also present. These two conditions probably have great influence upon the trophic changes.

Marie was the first to call attention to the changes which occur in the Hypophisis Cerebri in acromegaly. He thought that these were probably due to some changes in the sympathetic system. In this connection it is interesting to note that Berkley, in his paper on the Anatomy of the Infundibular Region, states that sympathetic fibres only are found in the pituitary body. But whether the changes in the pituitary body depend upon deeper-seated causes or not, there seems little doubt that interference with the hypophysis produces many of the changes found in acromegaly.

In two hundred and ten cases reported by Sternberg, (Die Akromegalie, Nothnagles system of medicine), hypertrophy of the hypophysis was present in nearly every case, while degenerative changes were present in the balance. An examination of reported cases gives the following classification:—

1. Simple hypertrophy of the gland with acromegaly.
2. Sarcoma of the gland with acromegaly.

3. Sarcoma of the gland without acromegaly.
4. Acromegaly without tumour of the gland.

This showing proves that the causal relation is by no means a simple one.

Furnivale furnishes the following analysis:—In thirty-four cases, there was hypertrophy of the hypophysis in thirty-one and degeneration in three; in twenty-four cases there was hypertrophy of the thyroid in eleven, atrophy or degeneration in eight, and five were normal; in seventeen cases, there was hypertrophy of the thymus in four; in six cases the thymus was persistent or redeveloped, and in seven absent.

Considering the variation in the condition of the ductless glands, and that certain cases of acromegaly have been preceded by a myxœdematous condition, it would seem that we might look for some explanation of the complicated symptomatology in the changes in these glands.

Naturally in this connection the question as to the function of the pituitary gland arises. Von Cyon (Pfluger's Archives, Vol. 87), thinks it probable that the hypophysis contains two principles, one of which stimulates the vagus centre and the other the centre for the *accelerans*. By these means, as well as by increasing the venous flow, especially through the thyroid veins, it controls the inter-cerebral pressure and acts as a protective mechanism to the brain. It also has a marked effect upon tissue change, producing increased excretion of nitrogen and of phosphates.

Stimulation of the hypophysis produces polyuria, and the same effect followed the administration of extract of the gland to a boy suffering from acromegaly. The diabetes so often associated with acromegaly appears to be due to degenerative changes in the pancreas and not to the action of the hypophysis.

Schiff (Wiener Klin. Wochenschrift, 1897, p. 277), shows from carefully conducted clinical work similar results. He kept several patients upon a diet of definite caloric value until the nitrogen excreted had been constant for several days. He then administered hypophysin tablets and noted great increase in the excretion of urine, urea and phosphates; the last he found particularly in the fæces. He had previously given Iod. Thyrine to the same patients with relatively little result. In one case, a healthy man of twenty-five, no results were apparent from either tablets or Iod. Thyrine, except some increase of urine without a corresponding increase in the nitrogen excreted.

Lloyd Andriesen (*Brit. Med. Journ.*, Vol. I, 1894), investigating the hypophysis from a morphological standpoint, finds that in certain larval and adult Cyclostoma and Ascidians there is a communication from the buccal cavity through the anterior ventral neuropore, infundi-

bulum and ventricular spaces, with the central canal of the spinal cord. By means of an emulsion of carmine he has been able to follow the circulation of water from the mouth to the neurenteric canal. He observes also a group of specialized nerve cells at the base of the brain and around the opening of the infundibulum into the neural canal, and that the glandular portion of the hypophysis discharges its secretion into the infundibulum where it mingles with the incoming stream of water. He considers that these cells act as a sensory organ and serve to test the water and that the secretion assists the absorption of oxygen by the nerve tissue.

Among more highly developed animals the aquo-vascular system ceases to function and is replaced by a blood system. The hypophysis, however, does not atrophy, but increases in size relatively and is very richly supplied with blood, sufficient proof that the gland still functions actively. The nerve cells show regressive changes and the epithelium lining the infundibulum loses its ciliæ and becomes atrophic. In the Cyclostoma and some of the fishes the hypophysis is relatively large, but in the higher orders it becomes progressively smaller, evidence that the gland is most active amongst aquatic creatures.

Andriesen draws a most interesting parallel between the hypophysis and the thyroid gland. The latter, he says, is developed in anatomical connection with the respiratory system, and physiologically is connected with the gaseous metabolism. He considers that both glands are respiratory in function and shows that the changes produced by interference with their function are such as would be expected from deficient oxidation.

It is a striking fact that the three observers quoted should have arrived at the same conclusion by such different methods, and attribute to the hypophysis such a marked influence upon oxidation.

Among the interesting questions which suggest themselves for solution are:—the relationship of the aquo-vascular system to the development of the embryo in the higher orders; the reason for the non-occurrence of acromegaly in certain cases of tumour of the hypophysis; the bearing of hypophysis on Exophthalmic Goitre; whether the Iodine contained in the secretions of the thyroid and pituitary glands converts ordinary oxygen into the nascent form (as chlorine does in bleaching), and so promotes metabolism.

We have in the hypophysis a remedy of great and undoubted power. Von Cyon (Die Physiologische Hertzgifte, Pflüger's Archiv.) has even been able by means of hypophysin to neutralize the action of atropin upon the heart, after it had become well established. The clinical determination of the value of preparations made from hypophysis in

acromegaly, is rendered difficult by the fact that many cases have been placed upon combined treatment, with thyroid and hypophysis, and that in others marked remissions in the course of the disease may occur. The relief which is obtained from the intense headache, by preparations made from both pituitary and thyroid glands, is however sufficient reason to warrant their employment, quite independently of other reasons.

The amount of work done recently in connection with the ductless glands is so considerable, that even a mere reference in a paper of this kind is impossible. A perusal of some of the more recent original papers will be found full of interest and will prove most instructive.

The Halifax Medical College is just about closing its 34th session. The year has been a very successful one. Twenty-one students will go up for the final examination for the Dalhousie University degree in medicine. It seems rather anomalous that the Halifax Medical College should only prepare men for the examinations set by another college, but for several years past the students have unanimously elected to go up for the University degree. The Medical College maintains a separate existence simply because a provincial grant comes to it as long as it remains as it now is. Should it become in name, what it very nearly is in fact, a faculty of Dalhousie, this grant would, according to provincial laws, be forfeited. Inasmuch as the present arrangement is, in the main, satisfactory, it is unlikely there will be any change made in the immediate future.

The death of the Lieutenant-Governor of Ontario appears doubtless to the general public to be the result of two unfortunate accidents. It is nearer the truth, however, to say that he succumbed to those slowly developing changes designated as senile. The osteoporosis so common in elderly people, had evidently in the case of the Lieutenant Governor became extreme; in fact, one may assume that a condition of *fragilitas ossium* prevailed. It cannot be clearly determined from the official statement of the medical gentlemen in attendance at just what point the first fracture occurred. From the history of the accident, one would naturally place it about the neck. It is a great art to be able to give out a written official statement of over two hundred words, without saying more than was said in the one relating to the death of the Lieutenant-Governor of Ontario.

THE

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THE FACULTY OF COMPARATIVE MEDICINE AND VETERINARY SCIENCE.

The work of a University is never completed. Success in one direction entails labour in another to keep all parts of the organization in harmony. The present high position of McGill University is due primarily to a recognition of this principle. In 1885 the Medical Faculty definitely took the lead by the enlargement of its facilities for teaching; it was quickly followed by the Science Faculty, which soon reached a commanding position. Then the Law Faculty took up the running and put itself well abreast of its fellows; the Arts Faculty which was relatively behind, was the next to receive attention, but in the meantime the enormous development of the Medical School in laboratories, lecture rooms and all the essentials of teaching, lifted the standard still higher.

In this laudable competition the Faculty of Comparative Medicine was left behind, not from any lack of diligence, but from the nature of the case. Ten years ago, the Veterinary School, which had long before been established by Dr. McEachran, had a standing equal to that of

any similar institution in America. At that time the course of study was only two years; it was purely practical in its nature, with little or no instruction in the preliminary scientific subjects of Physics, Chemistry and Physiology. Then the Dean demanded a three years' course, and full prominence was given to the scientific side by the occupants of the Chairs in the Medical Faculty. Those were the great days of the Veterinary School; men came from the United States and from all parts of Canada; they were imbued with the scientific spirit; they carried it away with them and instilled it into the schools all over the continent, with which they soon became identified.

Largely as a result of Dr. McEachran's good work with his own students, other schools have arisen in the United States. The teaching has been taken up by the large Universities and by the Commonwealths, and these bodies have given to it the attention it deserves.

Single-handed, out of his own monies, from the fees received from students and from an inconsiderable annual subvention from the Provincial Government, the Dean has not been in the position to keep the school upon a level with those so liberally supported by State and University bodies. Assistance from outside was necessary if he were to build and equip laboratories and a proper hospital and to gather round him a staff of specialists. That assistance he has not received, and, as a consequence, the school, instead of occupying its former place, has been distanced by its competitors.

Through the force of events the position of the Dean had become untenable and he has resigned. The University is now face to face with a hard problem. It has never been its custom to maintain any weak member, it has nourished and developed it, and can do so in the present case, if that course be considered preferable to cutting it off altogether. Indeed there is something to be said in favor of this extreme measure.

The subject of Veterinary Medicine has entirely shifted its ground in the last ten years. Now it is only a part of the wider science of Agriculture or Agronomics, and is so regarded in France, Germany, and the United States. The agricultural interests of Canada are daily assuming such importance, it is questionable if it is within the province of any single University to adequately provide for them.

The Governors of the University have never had a wider question before them. Even if they should decide to establish the Veterinary Faculty upon a new basis, with full and complete courses in the anatomy of the domestic animals, the principles of medicine and veterinary medicine, the principles of surgery and veterinary surgery, pharmacology, general and comparative pathology, bacteriology of infectious

diseases peculiar to domestic animals, parasitology, principles of breeding and veterinary obstetrics the diseases of the dog, and farriery, there yet remains for consideration the analysis of soils, the estimation of the food values of different crops, the exhaustion of the soil, the diseases of plants and trees, the bacteriology of milk and milk products, and all the problems connected with the earth that so closely touch the life of the people. These problems must be faced some day in this country; the cultivation of the soil, forestry, drainage, the breeding of cattle and the production of fruit cannot go on forever in the present haphazard fashion.

To solve these questions will require all the resources of intelligence and means possessed by the University and by the Government as well, and by his resignation Dr. McEachran has advanced the situation by revealing these problems in their clearness and simplicity. Things cannot continue as they are. Both Faculties are resolved upon that. They have conferred together and amongst themselves, and with the Principal, and all are agreed that the salvation of the school is bound up with the welfare of the country, and that, by a closer association of the purely scientific with agricultural interests. In the meantime, however, the teaching must lapse.

CEREAL "HEALTH FOODS."

Whatever justification there may be for throwing physic to the dogs, there is a literal reason for taking this radical measure with most of the advertised cereal foods. The movement in favour of these coarse foods began in America in the early forties under the influence of the "Return to Nature" cry, taken up by the Transcendentalists, so called, because what they said transcended the limits of sound sense. Graham advocated the virtues of unbolted flour, and Alcott proclaimed the regeneration of the world, through what Carlyle termed the "Gospel of Potatoes."

None of the cereal foods advertised to-day are as valuable as "Graham flour;" some of them are even more revolting to taste or sight; none are any better than the familiar bread of wheat, barley, or maize, or the long despised porridge, which is now become the main foundation of the American breakfast. The only difference is in the price. Any housekeeper knows the value of these humble breadstuffs, yet she will pay 20 cents a pound for Grape-Nuts, Shredded Wheat Biscuit, Ralston Health Club Breakfast Food, Wheatena, Vitos, Germea, Pettijohn's Breakfast Food, H-O Oatmeal, Mazama or Force.

The late Sir James Fitzjames Stephen long ago made the observation,

that you cannot infer from the statement of a fact to the truth of the statement, but in the minds of many, a printed falsehood has equal authority with the spoken truth. Grape-Nuts is called Grape-Nuts because it has nothing to do either with grapes or nuts. "Four heaping teaspoons of Grape-Nuts are sufficient for the average meal;" four heaping teaspoonfuls of Grape-Nuts weigh one ounce and equal .007 pounds of protein, of a fuel value of 117 calories. A full grown man requires for one meal .09 pounds of protein with a fuel value of 1175 calories. One pound of Grape-Nuts is equal to 1870 calories, one pound of oatmeal equals 1965, one pound of meat with bone represents 1405 calories. It is quite true that a part of the starch is changed to dextrin and grape sugar, but there is no reason for thinking it of greater food value than an equal amount of oatmeal or flour.

Shredded Wheat Biscuit, again, is merely an excellent bread of winter wheat, costing 20 cents a pound. Ralston Breakfast Food claims to be nothing more than a perfect food made from selected wheat, rich in gluten; even this small claim is not established, for it appears to be made of a soft winter wheat, as it only carries 10.7 percent of gluten. Vitos does not agree with the analysis it bears; it claims only 6.68 percent of water, in reality it has nine and a half. Up to this point no great amount of mischief has been done, save the general disturbance that arises from the propagation of scientific untruth. Indeed there is this to be said in favour of many of these foods, that being consumed mostly by idle women impressed by the claims of their high nutritive value in concentrated form, they offer no such temptation to overeating as is always a danger in the case of the succulent and palatable if homely porridge. But when we come to consider the gluten preparations, we are face to face with a real evil. They are advertised as free from starch, whilst in reality they contain only a little less of carbohydrates than ordinary flour.

"Truly," as Swift observed, "when I consider that natural disposition in many men to lie, and in multitudes to believe, I have been perplexed what to do with that maxim, so frequent in everybody's mouth, that truth will at last prevail." Certainly truth has not yet begun to prevail in that sphere of human activity which has to do with the supply of cereal foods.

PROPRIETARY PREPARATIONS.

The Medical Profession is face to face with a grave problem; that is, what shall be our attitude towards proprietary preparations. We have been "circularized," we have been overwhelmed with "literature," we have been patiently waited upon by "representatives," of this firm and

of that. At first the letters were opened and diligently read, then they were set aside unopened, with ostentatious carefulness, for future reference; yet with the secret hope that the office boy or the housemaid might of their own motion take upon themselves the unwilling sacrifice. These humble persons would be sinning in ignorance; we should incur the risk of despising knowledge. Few, even yet, have the hardihood to cast this burden of the post into the basket; indeed there is much to be said against this practice, for it has lead in careless hands to the destruction of stamped envelopes, invoices, bills and other documents of commercial value.

The great objection to this rough procedure is that much, that comes to us, is good; and it is a safe prediction that proprietary preparations will increase rather than diminish, and that they will have a wider though legitimate usefulness. When we have occasion to prescribe Sulphate of Iron and Carbonate of Potassium combined with Myrrh, Sugar, Spirits of Nutmeg and Rose Water, we write down "Mistura Griffiths;" if we desire Protosulphate of Iron and Carbonate of Potassium, we prescribe "Pil Blaud;" if Arsenious Acid and Carbonate of Potassium be desired, we order "Liq. Fowleri," which is not very good Latin, but it is very good sense. One might extend the list to "Easton's Syrup," "Parrish's Food," "Hutchinson's Pills," and "Seiler's Tablets," yet many of these are advertised by the departmental stores at so much a hundred, or so much the ounce.

The solution of this problem rests jointly with us and the manufacturers. There are firms, whose products we habitually employ, with perfect security that we shall have what we ask, and that our names shall not be heralded abroad to our confusion and shame. There are firms on the other hand whose products we may desire, and yet to mention their names in the most secret prescription or in the most casual way in an article, would expose us to humiliation and evil speaking. The profession is beginning to understand the distinction between these classes, and when the firms in question come to realize that they are not trusted, they will either mend their ways or entirely abandon the attempt to introduce their products through legitimate channels. Then both parties will know where they stand.

The remedy that is urged upon students and practitioners, in season and out of season, is to write out their own prescriptions in good Latin and send them to the druggist at the next corner. It has been held of old time that the Latin has some occult virtue, especially if preceded by the mystic R with the cross upon the tail, a remnant of the invocation to Jupiter to look benignantly upon our efforts. There may be something to be said for that view of the case, but certainly we do not get

much assistance from the druggist. There is on the face of it no reason why our neighbor should be more conscientious than the far away firm, which sends its "representatives" to us, which "circularizes" us and overwhelms us with "literature."

The Inland Revenue Department in Bulletin No. 60 issues a report of the analysis of 15 samples of Tincture of Opium, obtained from 15 druggists. Of these, 14 were prepared by the drugggists themselves, and one by an outside firm, but only four samples were genuine. Some were too strong in alcohol or opium; five were deficient in opium and in one case the deficiency amounted to fifty percent. The analysis of Citrate of Iron and Quinine gave similar results, less than half the samples being unadulterated. There is abundant evidence that the same laxity prevails in the preparation of other ingredients called for in prescriptions.

In Bulletin No. 34 issued by the Inland Revenue Department, there are analyses of Compound Tincture of Gentian, of Cardamons, Camphor, Myrrh, Rhubarb, Calumba, Ginger, Squills, Jalap, Arnica and Buchu. Of 23 samples of Tincture of Gentian, 9 were adulterated; of 11 samples of Tincture of Cardamons 5 were adulterated; of Camphor 2 out of 6; of Myrrh 5 out of 17; of Rhubarb 14 out of 21; of Calumba one-third; of Ginger 4 out of 7; of Squills 4 out of 6; of Jalap one-fourth the samples; of Buchu every one.

Carrying the research further, into Spirits of Nitrous Ether, and Dilute Hydrocyanic Acid, the official analysts found the same results. Only one sample out of nine of the former was found correct, some had no nitrous ether and several others were practically useless. The Inland Revenue Department has also gone into the matter of effervescent Sodium Phosphate at great length, in Bulletin No. 77. This preparation is somewhat new, being mentioned for the first time in the British Pharmacopœia of 1898; it does not occur at all in the United States Pharmacopœia. The prescription calls for 50 parts each of Sodium Phosphate and Sodium Bicarbonate, 27 parts of Tartaric Acid and 18 of Citric Acid. Apart from the difficulties of dehydrating the crystals, it is certain there is an interaction between the free acids and the Carbonate of Soda, whilst the preparation is kept in stock, which leads to deterioration with an excess of phosphoric acid. The Government chemists analyzed 64 samples, and only 13 were found to be genuine. The samples were purchased in nineteen cities and towns in Canada, and included all the preparations commonly offered for sale. Nearly all were below the standard in Sodium Phosphate, some were carelessly compounded, some adulterated with Magnesium Sulphate, and many deteriorated by age.

The matter of Beef Extracts is more serious. The public does not fully understand that these preparations are not foods. The originator of them, Baron Liebig, correctly assigned them to the class of stimulants, of which tea and coffee are the types. They have in addition the quality of a condiment, described by König under the term "Genussmittel," as a substance capable of aiding digestion. With the increasing public knowledge the manufacturers have been obliged to abandon the "Liquid Life" theory, and they have added articles of known food value, comminuted fibrin and other proteids, in some cases claiming that these have been predigested into peptones. There is reason for thinking that the bases of all these extracts are creatinin and urea, but in the present state of knowledge, he would be a rash man who should introduce into a system, already overburdened and embarrassed, a substance like urea, as a therapeutic measure. If predigestion of food were a process of any value at all, we should certainly look for its good effect in debilitated infants, and any one, who has to endure the chagrin of seeing foundlings fade away before his eyes, will readily appreciate the valuelessness of the whole series of "peptones," in that field of practice at least. These flesh bases represent one stage in the process by which complex nitrogen compounds are changed to simple ones, but we shall not be able to assign their real value to them, until the essential nature of the process called digestion is disclosed.

Frankly, we cannot do without the products of the manufacturers; we can and shall do without the products—good or bad—of those firms which push their wares with undue zeal. If they wish to adopt a suggestion, it would be, to take to heart the wisdom of hastening slowly. At any rate it will be the business of this Journal to lay before the profession from time to time such facts as will help them to avoid products, which are not genuine, and entaglement with firms, which are not to be depended upon for reticence.

MEDICAL ADVERTISING.

The proper procedure in writing an editorial article, is to commence as far away from the subject as possible. This canon of criticism will be sufficiently observed by saying that there is no evil without a remedy, an observation far enough away, when the subject under discussion is the abuse of medical advertising.

An average newspaper in these days is very little more than an advertising circular of patent medicines. By actual measurement of its columns one leading Canadian journal abandons 20 percent of its total space to this form of literature. In one issue of fifty-six columns there

were eleven and one-third columns of medical advertisements, in one of ninety-six columns there were fourteen, in another of one hundred and sixty columns there were by actual count thirty-two columns of this pernicious stuff.

It is not necessary here to dwell upon the nature of the claims, so publicly made, nor to insist upon the falseness of them; they carry no weight in normal minds, but the minds of persons to whom they are addressed are not even in a condition of normal ignorance. The advertisers take advantage of the psychological condition of the real or imaginary sufferer; they hold out one last hope to those whom the profession in all honesty has abandoned to die, and make high promises to those who have preferred to suffer in secret rather than seek the ordinary methods of cure. One who publishes these untruths is, in the Scriptural phrase, like him who letteth out water; he cannot foresee the evil consequences of his act, he does not care what heart will be made faint, when that last hope is dispelled, which was falsely raised.

It has long since become impossible to allow any but a very few newspapers in the hands of children; it is now almost impossible for a man to read his paper at the breakfast table, filled as that paper is with the loathesome details of catarrhs and coughs and running sores.

It is not enough to say that a man is not compelled to read this tissue of untruth; he cannot avoid it,and if he be ill and has exhausted all legitimate means of cure, he is very apt to abandon the old physicians for the new quacks, to his own hurt. If the progress of medicine were correctly indicated by these advertisements this would be a truly marvellous age. During the past year the blind have been made to see, the deaf to hear, the lame to walk, after bloodless operations; if only these miracle-workers could be made to cast out the evil spirit of untruth from their own hearts, that would be a fairly marvellous feat.

A person suffering from a "tired feeling" is stimulated with a tonic wine containing alcohol and cocaine; another has his catarrh dried up by morphine; constipation is cured with senna under the guise of some fanciful syrup, and children are soothed into a lethal slumber by some preparation of opium. It is no wonder then that the victims are ready to adduce sworn testimony that they cannot get along without their favorite medicine; any drunkard or morphinomaniac will attest to as much. Even when the evil has not proceeded so far, the system is dulled to the beneficent action of these drugs, against the time it may be necessary to have legitimate resort to them.

It is no small matter to break down the boundary between truth and falsehood, and when one has read the affidavits in support of statements that cannot be true, he is inclined to doubt the dictum of the

late Sir Francis Johnston, that a statement is not necessarily false because it is sworn to. Most of these affidavits are obtained when the victim is under the influence of benumbing drugs, or by a threat that they will be withheld from the sufferer, who has been brought to rely upon them as a relief from his pain.

There is no law against publishing false statements; there is a law against publishing obscene statements, and many of the advertisements in newspapers come within the legal definition;—"an obscene publication, whether true or false, which tends to deprave or corrupt." Article 179 of the Criminal Code expressly deals with the exhibition of disgusting objects, and with the advertising of drugs to be used for immoral purposes. No new law is required to prevent the sale of poisons. The whole matter is adequately covered by Section 4034 of the Revised Statutes; the poisons are specifically mentioned in the schedule, and many of these are sold openly in defiance of the law by the vendors of Patent Medicines.

MEANINGLESS EXPERIMENTS.

There is of necessity a great deal of experimental work in Medicine the results of which for the present are wholy meaningless, particularly in association with diseases of metabolism, whose nature is obscure. The Journals are full of crude accounts of unfinished work, of results having a bearing upon nothing, of predictions suggestive of absurdity. It is this makes the antivivisectionists to rage against us. The British Medical Journal has completed two series of correspondence upon the transfusion of fluid, and the transplantation of pancreas in Diabetes. The latter operation is a fair type of meaningless experiment. Even in a Medical Journal there is place for reticence in the face of the mystery surrounding all disorders of Metabolism, and it is hard to see what good is to be accomplished by Dr. Allan's relation of how he had transplanted the pancreas of a cat, and how all three, cat, pancreas and patient were the worse for it. It would appear Dr. Allan desired the pancreas of a sheep, but the surgeon who was brought in to perform the operation "considered it impracticable," on what grounds we do not know. The patient's condition we are told was not satisfactory at the time of operation, and after it, there were symptoms which gave rise to uneasiness. That, one can readily believe, but at any rate the pancreas sloughed out, which is probably the best thing that could have happened, though it scarcely required experimental evidence to demonstrate the event, nor any great profundity of pathological learning to foresee it. Dr. Allan had previously fortified his position by taking

counsel with the subscribers of the Journal, and as it appears from his letter that he has other surgical procedures in view, it might do no harm to urge him to modify his zeal, till a surer foundation is obtained in patient quiet experiments upon animals lower in the scale than the inmates of the Glasgow Infirmary.

For the transfusion of solutions there may be proper occasions, when it is required to raise the blood pressure during or after operations; to increase the multiplication of the erethrocytes after haemorrage, or to diminish the intensity of poisons. The employment of this procedure in essentially mortal conditions is only to prolong the agonal period and minister to curiosity. There may of course be occasions when it is desirable to rouse a patient from his lethal stupor, for the sake of making a will or for performing some other legal act; but apart from this it is a matter requiring some deliberation, for nothing is gained to the patient, his friends, or the sum of knowledge by attempting to prolong the stage of mortality, stimulating the organism to an appearance of vitality, without any useful performance of its functions.

RURAL QUARANTINE.

A constable of a country town may be an excellent citizen and a zealous officer, and yet be ill instructed in the principles of Sanitary Science. There has been a mild outbreak of smallpox in the little village of Thorburn, Nova Scotia, and the people of the neighboring town of New Glasgow were resolute to have none of it. To that end they established a cordon around their homes and suspended all communication with their neighbours. A colored resident of Thorburn whose mind was inflamed with desire of a daughter of New Glasgow, evaded the quarantine and entered the forbidden city by stealth. He was discovered by the constable, who framed the resolution, "though that his joy be joy, to throw such vexation on't, as it may lose some colour." The Moor was apprehended and secured in the police station. The health committee was convened and instructions given that he should be "fumigated."

The official proceeded to carry out his orders in heroic fashion. He compelled his prisoner to undress, he lighted a fire in a stove and upon it placed a liberal supply of sulphur. The victim was then instructed to hold his clothes over the glowing mass, that the fumes might "enter." By this time the official found the atmosphere uncomfortable and retired, leaving the negro to his fate, and locked the door. Presently he was attracted by "shouting within" but he looked upon it as a manifestation of rebellion against the duly constituted health

authority of New Glasgow. All sounds soon ceased, and that was taken as evidence that the prisoner had been reduced to reason and that the work of purification was accomplished. The door was opened and the form of this rebellious spirit was seen "wrapt in mephitic vapours," the spirit itself hovering upon departure.

The assistance of the medical adviser of the board was obtained in time, and the spirit was persuaded to reinhabit its dark tenement. Whatever may be said of the methods of the New Glasgow Board of Health, the fame of their practice in this case spread through the surrounding districts and they have as yet kept their precincts free from the invasion of smallpox.

HOSPITALS FOR CONTAGIOUS DISEASES.

The facilities for caring for cases of contagious diseases in Montreal have always been deficient, and of late years they have been growing worse rather than better. At the present moment the only place for treatment and isolation is in the Civic Hospital on Moreau Street in a building which gained notoriety as the old smallpox hospital. Physicians and the public have long been alive to the necessities for better things; they have discussed, planned and protested, till at length a solution has been found.

Within the past month, the Mayor, as official head of the Corporation of the City of Montreal, has entered into an agreement with the Corporation of the Notre Dame Hospital to erect a contagious diseases hospital to care for patients of the Catholic faith; a similar agreement has been made jointly with the Montreal General Hospital, the Royal Victoria, and the Western, to deal with the remainder of the community. Under these agreements two separate institutions are to be founded; each will receive $15,000 a year from the city and in return each will provide accommodation for 20 patients daily, equal to 7,300 nursing days. Patients in excess of these numbers will be paid for at the rate of one dollar a day. Both of these hospitals, it is expected, will be ready for occupation one year from this date.

The modern history of the contagious diseases hospitals dates back to August, 1900, when a quarterly meeting of the Board of Governors of the Montreal General Hospital was held and received a resolution from the Medical Board that such a hospital was urgently needed, and recommending a renewal of the arrangement that had once existed with the city. The Governors adopted this advice, on the ground that the then existing Civic Hospital did not receive the confidence of the public. On October 10th a meeting was held of representatives of the

Montreal General, the Royal Victoria and the Notre Dame Hospitals, to discuss grievances against the Civic Hospital and to urge joint control by those institutions. The result of this meeting was a resolution asking the City to build a hospital and to put it under experienced control, the sum necesary to be raised by a special loan. On December 3rd, another meeting was held at the City Hall, and Mr. H. B. Ames outlined the new project, the control to lie with the City Council, though there would be representatives from the English and French Hospitals. This led to a conference of citizens a few days later at which a wide difference of opinion was revealed. Some preferred civic control; those with less faith in the infallibility of the Council advocated management by a committee of citizens; some were in favour of one hospital for both nationalities; some were in favour of two with dual control.

In the meantime a crusade was being carried on against the old Civic Hospital on Moreau Street. There was abundant evidence that it was a disgrace to the city, that there was a lack of medical attendance and of nursing, that in short the hospital was worse than a gaol, inasmuch as in a purely penal institution one is not in danger of his life from the contagion of disease. It was a matter of common knowledge that patients who went to the hospital ill of Measles, contracted Scarlet Fever and died of the more recently acquired disease. Under the influence of these facts some progress was made and in January, 1901, a bylaw was drafted for submission to a vote of real-estate proprietors. Under the terms of this proposal the City was to erect, maintain and control the Hospital with a minority representation from the outside; but a Medical Board appointed by the old Hospitals was to have charge of the internal affairs. This plan received general support and was officially commended by the Provincial Board of Health, though there was a doubt in the minds of many as to the capacity of the City Council for efficient management of any public institution of any kind.

In January, 1901, an outbreak of Scarlet Fever in Montreal brought out in a very clear light the utter inadequacy of the existing facilities. There were five hundred cases requiring isolation at one time, while there was accommodation for not more than twenty. The newspapers of that time are filled with accounts of what patients had to endure, which read very like the history of pest-houses in mediæval times. The medical profession did its part in calling public attention to the necessity for better facilities, by letters and interviews in the newspapers, by private remonstrance with the Aldermen and by public statements.

On the 23rd January, 1901, the City Council received a communication from Sister Filiatrault, whose official title, *Supérieure Générale,*

Hôpital Générale, gave it considerable weight. Under this offer, this Lady undertook on behalf of the *Sœurs Grises* to contribute $50,000 for a hospital for Catholics, on condition that the City should contribute a like amount and give a site for the building, as well as an annual subvention of $10,000. A week later the Montreal General Hospital and the Royal Victoria through their Presidents made a similar offer in respect of the non-Catholic portion of the community.

It now looked as if the matter were settled on the dual basis, but the Health Committee was loth to abandon the civic hospital scheme controlled by the City. The question was soon put at rest by a letter from His Grace Mgr. Bruchesi, the Archbishop, dated 6th March, 1901, in which he laid down the principle that the only plan tolerable to Catholics was a separate hospital under their own entire management.

A new Council was elected in February, 1902, which took the matter up again, with the result that a single civic hospital with no religious leaning was again agreed upon. The Archbishop summoned the city clergy and put into their hands an ultimatum which was read after High Mass on April 16th. It contained the sentence: "and if we are not granted separate civic hospitals, I shall forbid the faithful under my care to enter the neutral one." Meantime the bylaw for submission to the ratepayers was set aside, and a minor controversy rose and fell about alienating any part of the public parks for a hospital site, but once the principle of two hospitals was established the rest was easy, and contracts have just been signed providing for their erection as has been stated.

The hospitals to be erected by Notre Dame for Catholics will be built below Sherbrooke Street, between Maissonneuve and Plessis, on a site covering 60,000 feet. It will be on the pavilion system, with separate buildings for cases of Diphtheria, Measles, Scarlet Fever and doubtful cases. These buildings will be entirely isolated or connected by corridors or tunnels, probably the latter. The plans are now in the hands of Marchand and Haskell, and the cost will be upwards of $100,000. The money is all in hand, having been secured from the *Credit Foncier* of Canada, partly upon mortgage, and partly secured by a transference of the city subsidy. The material of construction will be iron and brick, with stone trimmings, erected on the "slow-burning" principle.

The new hospital will be an integral part of Notre Dame under the same management. The physicians will be nominated by the Medical Board and appointed by the Board of Governors; the nursing will be in charge of the *Sœurs Grises,* with the assistance of the nurses in

training, and Dr. E. B. Lachapelle will be the General Superintendent of the whole institution.

On the part of the English Hospitals, it is proposed to apply to the Legislature at Quebec for a charter of incorporation for a new hospital to be called the "Alexandra Hospital," which should have a Governing Board of fifteen members, to be composed as follows: the President and three members of the Montreal General Hospital, the President and three members of the Royal Victoria Hospital, and the President and two members of the Western Hospital, making eleven ex-officio Governors. Of the remaining four, two are to be elected by Subscribers of one thousand dollars and upwards, and two by Subscribers of one hundred dollars and ten dollars annually.

At a Meeting held in the Board Room of the Montreal General Hospital on the 17th March last, the Montreal General Hospital was represented by Mr. J. Crathern, President, Mr. J. R. Wilson and Dr. R. Craik; the Royal Victoria Hospital by Mr. R. B. Angus, President, Mr. E. S. Clouston, Hon. George A. Drummond and Dr. James Stewart, and the Western Hospital by Mr. C. F. Smith, President, Lt.-Col. J. H. Burland and Dr. F. W. Campbell. The Hon. Mr. Drummond was elected President, Mr. Clouston Honorary Treasurer, and Mr. J. J. Robson was appointed Secretary.

At this Meeting, it was decided to make an appeal to the English-speaking citizens of Montreal for funds sufficient to build and equip the hospital, as it was thought that the fifteen thousand dollars per annum would not be more than sufficient to carry on the regular work in an efficient manner, and the Governors are now appealing for assistance, not so much because it is a work of charity, as an urgent and greatly needed measure of public and personal safety, affecting rich and poor alike. Sir Wm. Macdonald has headed the subscription list with ten thousand dollars, and the Governors hope that every family will contribute something, no matter how small it may be, in order that there may be an Infectious hospital of such a character as will command the confidence of the whole community. It is understood that a number of private wards will be provided where patients can go and be attended to by their own physician.

The Governors are now endeavoring to find a suitable site for the Hospital. In this, they are experiencing more difficulty than the Notre Dame, because in the eastern portion of the city there are large tracts of vacant land, whereas, in the western section, most of the land is built upon and is of very much greater value. A contract was made for the purchase of a piece of land bounded by Mount Royal

Avenue, Esplanade Avenue and St. Urbain Street, which would have been a most suitable site, being but a few yards from the two houses which are at present used for the isolation of infectious cases, but as soon as the proprietor found out the purpose for which the land was required he repudiated the contract and the Governors have now to look for another site.

As soon as the site is obtained, plans will be prepared and the work of construction pushed forward with all possible despatch.

MEDICAL NEWS.

A fine new hospital has just been opened at Glace Bay, Cape Breton, known as St. Joseph's Hospital, and is said to be a very comfortable and well appointed institution. It offers accommodation for 48 public and 10 private patients. The building, which is situated to command a magnificent combination of land and water scenery, has been erected by private philanthropy at a cost of about $25,000.

The Convocation of the Medical Faculty of Queen's University, Kingston, was held on the 9th of April for the purpose of conferring degrees. The Chancellor, Sir Sanford Fleming, presided, and delivered a brief address. The graduates were "laureated," as a local paper observes, and the valedictory address was given by J. L. McDowell. Fifty-one students wrote in the examinations and forty were successful. The medallists were A. H. Leonard, Kingston, in Surgery, and W. S. Murphy, Portland, in Medicine.

The Thirty-Second Annual Convocation of the University of Bishop's College for conferring degrees in the Medical Faculty, was held in the Synod Hall on Friday 24th April. The graduates were James Franckum, W. W. Kelly, F. Richards, W. H. White, D. W. Morison.

Wood gold medal—James Franckum, for best aggregate in all examinations, also Nelson gold medal, for best examination in Surgery. Chancellor's prize—William W. Kelly, for best examination in final branches. David silver medal—G. G. Armitage, for best examination in primary branches. Anatomy prize, second year—Frederick W. Aris. Anatomy prize, first year—Samuel Ship and Stanley L. Lucas.

Rev. Principal Whitney presided. The Dean, Dr. F. W. Campbell, addressed the Convocation; the valedictory address was delivered by Dr. W. W. Kelly and Dr. Reilly replied on behalf of the Faculty. The degree of D.C.L. was conferred upon Dr. Casey Wood of Chicago and seven graduates in Dentistry received their degrees.

During the present session of the Nova Scotia Legislature the annual reports of various provincial charities have, as usual, been presented. One of these reports is that of the Victoria General Hospital at Halifax, an institution which enjoys the somewhat unusual distinction of being supported entirely by the public treasury. This hospital has accommodation for about 160 patients, and has within recent years been advanced to a very high state of efficiency under the superintendence of Mr. W. W. Kenney. A total number of 1669 patients received treatment during the year, a number which would have been larger had it not been neccessary to quarantine the institution for some weeks on account of the unfortunate development of a case of small-pox in one of the wards early in the year. The expenditure was $57,556. It is the intention of the Government to make substantial improvements to the hospital during the present year, for which purpose a sum of about $20,000 has been voted in addition to the usual appropriation for ordinary expenditure.

There is a number of general hospitals in Nova Scotia, all, however, being much smaller than the Victoria General Hospital. They receive a grant from the provincial treasury, which during the present session of legislature has been fixed at 30 cents per patient per day, providing the sum given to any one hospital does not exceed $1,500 a year. One of the best known of these smaller institutions is the Aberdeen Hospital, at New Glasgow, a manufacturing town, where are situated the smelting furnaces and rolling mills of the Nova Scotia Steel and Coal Co., the extensive works of the Matheson Foundry Co., and numerous other ironworking industries. It is therefore a town in which accidents are common, and some very excellent surgical work has been done in the Aberdeen Hospital. The Brookland Hospital, at Sydney, is another institution at which some excellent surgical work is done. This hospital was built by the Dominion Iron & Steel Co., especially for the benefit of its sick and injured employees, but none are refused admission. The hospital at present can accommodate 22 patients, but when completed will be able to receive nearly double that number.

The report of the Nova Scotia Hospital, an institution devoted entirely to the treatment of the insane, shows that 155 patients were admitted during the year, and that a total number of 551 were under treatment; 160 patients were discharged, of whom 74 were regarded as being cured. This is equivalent to 47.6% of the admissions. Among the improvements reported is the completion of a fine new building

containing an associate dining room capable of accommodating 300 patients, and a nicely appointed recreation hall. The expenditure for the year was $82,576. This hospital is supposed to receive only those cases of insanity which offer a fair prospect for cure, or which are, for any reason, unsuited to the care of a county asylum. Chronic "harmless" cases are cared for in the various county asylums, all of which are subject to rigid inspection by the Government inspector of humane and penal institutions. At present this position is held by Dr. George L. Sinclair, who is an exceptionally capable officer, and untiring in his efforts to improve the standard of care given to the defective and criminal classes in Nova Scotia. Dr. W. H. Hattie, (McGill '91), is Superintendent.

The event of greatest concern to the Medical Profession of Nova Scotia within recent months is the death of Dr. Andrew Halliday, which occurred at Halifax on the tenth day of March. Dr. Halliday was a graduate of the University of Glasgow, and a young man of great promise. Earnestly devoted to his profesion, and enthusiastically fond of the scientific branches of medicine, he was a diligent and thoughtful student. For a number of years he practiced in a country town, where he maintained a small laboratory in which he did some excellent original work. His bent being for laboratory work he accepted the directorate of the laboratory of the Provincial Board of Health scarcely a year and a half ago, and was afterwards elected Associate Professor of Pathology at the Halifax Medical College. He also lectured on Zoology for some years at the Dalhousie University. In all these positions his work was characterized by conscientious thoroughness, and he won the esteem and confidence not only of his students but of the whole profession throughout Nova Scotia. His death at the early age of thirty-six years is much regretted, and leaves a blank which will not easily be filled.

The Canadian Association for the Prevention of Tuberculosis held its Third Annual Meeting in Ottawa on the 15th April. The Montreal League was admitted to affiliation and Dr. Roddick presented a report showing that in many respects the organization in Montreal is more perfect, and the work carried on more systematically than in any other city in Canada. Dr. Bryce, Secretary of the Ontario Association, presented a report which stated that branches had been established in Guelph, London, Hamilton and St. Catharines in addition to the one in Toronto.

The following officers were elected:

Honorary President—His Excellency the Earl of Minto.

Honorary Vice-Presidents—Sir Wilfrid Laurier, Lord Strathcona, and the Lieutenant-Governors of the Provinces, the Northwest Territories and the Yukon.

President—Hon. Senator Edwards, Rockland.

Honorary Treasurer—Mr. J. M. Courtney, C. M. G.

Secretary-Treasurer and Organizer—Rev. Dr. Moore.

Executive Council, appointed by His Excellency, the Governor-General—Hon. Sidney Fisher, Ottawa; Hon. Wm. Templeman, Victoria; B. C.; Mr. R. L. Borden, M. P., Halifax, N. S.; Dr. T. G Roddick, M. P., Montreal; Mr. C. B. Powell, M. L. A., Ottawa; Dr. H B Small, Ottawa; Dr. F Montizambert, Director of Public Health; Prof. Robertson, Commissioner of Agriculture and Dairying; Dr. R. W. Powell, Ottawa; Mr. Geo. H. Perley, Ottawa. Elected by the Association—Sir Wm. Hingston, Montreal; Sir James Grant, Ottawa; A. W. Fleck, Ottawa; Dr. E. L. Lachapelle, Montreal; Dr. P. H. Bryce, Toronto; Dr. Fagan, Victoria, B C.; Dr. E. J. Barrick, Toronto; Dr. G. Bell, Winnipeg; Mr. Sheriff Sweetland; The Archbishop of Ottawa.

The Montreal League has arranged with the Ministerial Association that addresses shall be delivered in the school rooms of all Protestant Churches by physicians on Sunday evening, 17th May. His Grace Mgr. Bruchesi has given his consent to a similar series of meetings in the Catholic Churches.

MEETINGS OF SOCIETIES.

The Congress of American Physicians and Surgeons will hold its Sixth Triennial Session in Washington, May 12th, 13th and 14th, 1903. This Congress is composed of members of the following National Medical Societies whose names, with those of their secretaries, are given.

American Ophthalmological Society—Secretary, S. B. St. John, M.D., 68 Pratt Street, Hartford, Conn.

American Otological Society—Secretary, Dr. Frederick I. Jack, 215 Beacon Street, Boston, Mass.

American Neurological Association—Secretary, Graeme M. Hammond, M.D., 60 W. 25th Street, New York City.

American Gynecological Society—Secretary, J. Riddle Goffe, M.D., 22 E. 35th Street, New York City.

American Dermatological Association—Secretary, Charles J. White, M.D., 259 Marlboro Street, Boston, Mass.

American Laryngological Association—Secretary, James E. Newcomb, M.D., 118 W. 69th Street, New York City.

American Surgical Association—Secretary, D. P. Allen, M.D., 278 Prospect Street, Cleveland, Ohio.

American Climatological Society—Secretary, Guy Hinsdale, M.D., 3942 Chestnut Street, Philadelphia, Pa.

Association of American Physicians—Secretary, Henry Hun, M.D., 149 Washington Avenue, Albany, N.Y.

American Association of Genito-Urinary Surgeons—Secretary, John Vander Poel, M.D., 36 W. 39th Street, New York City.

American Orthopedic Association—Secretary, John Ridlon, M.D., 103 State Street, Chicago, Ill.

American Physiological Society—Secretary, F. S. Lee, M.D., 202 W. 81st Street, New York City.

Association of American Anatomists—Secretary, G. C. Huber, M.D., Ann Arbor, Mich.

American Pediatric Society—Secretary, S. S. Adams, M.D., No. 1 Dupont Circle, Washington, D.C.

American Medico-Psychological Association—Secretary, C. B. Burr, M.D., Flint, Mich.

American Association of Pathologists and Bacteriologists—Secretary, H. C. Ernst, 688 Boylston Street, Boston, Mass.

The officers of the Congress are:

President—William W. Keen, M.D.

Vice-Presidents (ex-officio)—Presidents of constituent societies.

Secretary—William H. Carmalt, M.D., New Haven, Conn.

Treasurer—Newton M. Shaffer, M.D., New York City.

To enable a physician to become a member of the Congress, with a right to participate in its proceedings, it is necessary that he be a member of one of these constituent national societies, but a physician may be accredited as a visitor to the Congress by any one of the constituent societies. It has been arranged that members and their friends attending the Congress can secure from the passenger associations a railroad rate of one and one-third of first-class fare. This Congress is always attended by a large number of Canadian physicians.

The Fifty-Fourth Annual Meeting of the American Medical Association will be held in New Orleans, May 5th, 6th, 7th and 8th, and extraordinary preparations are being made in that charming city for the reception and entertainment of members. The origin of the American Medical Asociation dates back to 1846, when a convention of physicians from the various states was called at New York. This convention adjourned to meet at Philadelphia the following year, when the American Medical Association was organized, and it has been in exist-

ence ever since, holding a meeting each year, except two years during the Civil War. It has now a membership of over 13,000.

Special trains will be run from all the principal cities and a trip by water from New York and return is offered for the low rate of fifty dollars. The Editor-Secretary of the Association is Dr. George H. Simmons, 61 Market Street, Chicago.

The General Meeting of the Royal Society of Canada will be held in Ottawa during the week commencing May 18th.

The Thirty-Sixth Annual Meeting of the Canadian Medical Association will be held in London, Ontario, under the Presidency of Dr. Walter H. Moorhouse, on August 25, 26, 27 and 28. Dr. James Stewart, Professor of Medicine in McGill, will deliver the Address in Medicine; Dr. Alexander Hugh Ferguson, the Address in Surgery, and Dr. Matthew D. Mann, the Address in Gynaecology. The meeting was held in Montreal last year.

The Annual Meeting of the Ontario Medical Association will be be held in Toronto, June 16th, 17th and 18th. Dr. J. C. Mitchell, Toronto, is the President, and Dr. H. C. Parsons, Bloor Street, W., Secretary. Papers and business are in charge of Dr. W. P. Caven, Toronto; entertainment and arrangements are in the hands of Dr. Bruce L. Riordan. This will be the first meeting of the Ontario Medical Association to last three days.

The American Congress on Tuberculosis will convene at St. Louis, Mo., July 18th, 1903. The object of the organization is to advance the science of prevention of tuberculosis. Dr. Daniel Lewis, of New York City, is President of the Congress, and the associate officers include many of the leading physicians of the country.

The Fourteenth International Congress of Medicine was convened in Madrid, Spain, during the week of April 23 to 30. A communication from the Secretary General invited the atendance and co-operation of all who were interested, and the programme showed all of the departments of general medicine, obstetrice and gynæcology to have been thoroughly represented. The Secretary of the American Committee was Dr. John H. Huddleston, No. 126 West 85th Street, New York City.

Reviews and Notices of Books.

Diseases of the Skin, Their Description, Pathology, Diagnosis and Treatment, With Special Reference to the Skin Eruptions of Childhood and an Analysis of Fifteen Thousand Cases of Skin Disease. By H. Radcliffe Crocker, M.D., (Lond.), F.R.C.P., Physician for Diseases of the Skin in University College Hospital, Etc., Etc. Third Edition With Four Plates and 112 Illustrations. London, H. K. Lewis; Philadelphia, P. Blakiston's Son & Co.; Canadian Agents, Chandler and Massey, Montreal and Toronto. Price, $5.00.

The English edition of this well known work on skin diseases is issued in two volumes with the pages numbered consecutively and an index at the end of the second volume. Unfortunately there is nothing to denote whether the page referred to is in the first or second volume, and thus much of the advantage gained from having such a large work divided is lost. The American edition, on the other hand, makes one large volume of 1466 pages.

As Crocker's dermatology is so well known and has been already reviewed in these columns, there is no need here to give a detailed account of it. We may, however, point out some of the alterations and additions made in the present edition. The names of some of the less common diseases the author has thought wise to change to what we we have always looked upon as those most favoured by American dermatologists. Thus "Hydroa herpetiformis" now is named "Dermatitis herpetiformis." Lichen ruber and pityriasis rubra pilaris are, we think, properly classed together as "Lichen acuminatus," a term which avoids the confusion connected with the older names, brought about by the divergence of opinion concerning the identity or otherwise of the two conditions. Crocker holds that the two are undoubtedly identical, and gives as most convincing evidence the fact that a case shown at the Dermatological Congress in 1892 was claimed by both parties for their own disease. The list of new articles enumerates about forty different diseases; of these, however, the majority are rare affections of which only a few cases in all have been observed. Among those of interest as associated with recent discoveries in medical and kindred sciences are X-ray Dermatitis, Toxin Serum Eruptions, and Blastomycosis Hominis. It is strange that no case of the last named disease has as yet been recognized in England, although Curtis has found it on the continent of Europe. Crocker's description is taken mainly from Gilchrist's work. While there are no plates, with the exception of one showing the principal syphilides and another of the ring-worm fungi,

the author has indicated where the best plates illustrative of the respective diseases are to be found, his own Atlas naturally being the principal one referred to. There are, however, numerous illustrations in the text of the microscopical anatomy of the various lesions. The references to works of other dermatologists are more valuable than usual on account of their being accompanied in most cases by a short foot-note explaining the purport of the article to which attention is directed. The author has added to the present edition an appendix on the staining of micro-organisms by Mr. George Pernet.

Altogether the new edition is a distinct improvement on the older ones and at the same time has not been made very much more cumbersome. It will no doubt have the success of the former editions and continue to rank as one of the best of English works on dermatology.

G. G. C.

PRACTICAL HANDBOOK OF THE PATHOLOGY OF THE SKIN, An Introduction to the Histology, Pathology and Bacteriology of the Skin, With Special Reference to Technique. By J. M. H. MacLeod, M.A., M.D., M.R.C.P., Assistant to the Dermatological Department, Charing Cross Hospital; Physician to the Skin Department, Victoria Hospital for Children. With 8 Coloured and 42 Black and White Plates. London, H. K. Lewis. Price, 15/ net.

Up to the appearance of the present work, anyone wishing to study the pathology of the skin, has been forced to obtain his information from the larger text-books on dermatology, and in only a few of these has the subject received the prominence which its importance demands. Feeling that to the student of dermatology, the need of a handbook dealing only with this part of the subject was evident, the author has given us here a systematically arranged treatise on the pathology of skin lesions, which, however, he modestly states, is more of the nature of an introduction than a complete manual upon the subject.

The first six chapters contain a description of the apparatus employed, and the methods of staining, mounting, section cutting, etc., in obtaining and preparing specimens for histological examination. The matter is gone into sufficiently in detail to allow an unskilled laboratory worker to follow the procedures recommended without difficulty. Such, indeed, may be said of all parts of the book dealing with technique.

The normal histology and embryology of the skin are next fully described, and then the author takes up in order the pathological changes found in the various layers of the epidermis and corium. A chapter each deals with the hair and hair follicles, sebaceous and sweat

glands, muscles, blood vessels, lymphatics, nerves, etc., while the last seven chapters are descriptive of the vegetable and animal parasitic diseases. The book is copiously illustrated with both coloured and black and white plates nearly all of which are the author's handiwork. That it represents all that the author claims for it and more is unquestionable and without doubt it will simplify and thus encourage the study of microscopical pathology in skin lesions, a part of the subject which is too often neglected by dermatologists, and the one through which we hope in the future to base a scientific classification of such diseases. We have much pleasure in recommending it to those interested in this branch of medicine. G. G. C.

THE INTERNAL SECRETIONS AND THE PRINCIPLES OF MEDICINE BY CHARLES DE M. SAJOUS, M.D., Vol. I. $6.00. Philadelphia, F. A. Davis Co.

A critic is always right in cases where it does not matter whether he is right or wrong; but in the hundredth case he is sure to be wrong, because, when an author leaves the beaten track, the critic presumes he has lost his way, as the critic himself would be sure to do. This large book by Dr. Sajous looked at first like the hundredth case, and it required some investigation to make it clear that it is not a most important contribution to the sum of knowledge. It is a product of the library not of the laboratory; it is made up of opinions and statements gathered together with zeal and industry; but the only opinions that are of any value are those a man arrives at for himself, and they are valuable chiefly to himself. A great fabric has been reared of very flimsy material on a very small foundation, and it is easy to guess what will happen when it is blown upon by the Spirit of the Laboratory. Of course, a great deal of what Dr. Sajous says may be perefectly true, but one would like better evidence of it than is contained in this book.

This volume deals chiefly with the physiology and pathology of the ductless-glands, and proceeds upon the assumption that their functions are sufficiently similar in all vertebrates to warrant the use of data obtained in the lower animals in the study of the corresponding organs in man. The secretion of the adrenals, it is claimed, has been traced to the pulmonary alveoli, and there holds in combination the constituents of hæmoglobin, endowing them and the plasma with their affinity for oxygen. This secretion, it is held, and not the red corpuscles, carries on all the oxidation processes, and therefore such conditions as hæmoglobinuria, methæmoglobinuria, and hæmatoporphyrinuria indicate successive stages of hæmoglobin dissociation, incident upon adrenal insufficiency.

Next, the author strives to show that the adrenals are directly connected with the *anterior pituitary body* through the solar plexus, the splanchnic nerves, and the cervico-thoracic ganglia of the sympathetic, and that this diminutive organ, formerly thought to be the vestige of some aborted gland, is in reality the most important organ of the body, governing the adrenals, and therefore all the processes of oxidation. The corollary to all this is that the vital processes depend upon the functional efficiency of the pituitary body. The history of thought in connection with this body has been a chequered one. It was originally believed to be the source of the *pituita* or secretion which appears in the nose, and from that humble office it rose in dignity and later became the ultimate lair of the soul. This theory in turn was abandoned, and for a long time the pituitary body was degraded to the position of an aborted gland. It looks now as if there were better days in store for this despised remnant. Dr. Sajous makes the thyroid gland the handmaiden of this controlling organ, sustaining its efficiency by means of its secretion; excessive production of thyroid fluid causing overstimulation and exophthalmic goitre; reduced secretion causing myxœdema. But this is not all, for the author is led to conclude that what are now considered as symptoms of infection or poisoning are manifestations of overactivity or insufficiency of the adrenal system; and the physiological action of remedies also depends upon the anterior pituitary body. Cholera, arsenic poisoning, and phthisis thus find an easy solution in lowered functional activity of the adrenal system; but when a similar explanation is offered for the formation of glycogen and urea, for the protective processes in the intestinal canal and in the respiratory surfaces, for acromegaly, chlorosis, glycosuria, cancer, gout and the action of remedies, then we must part company with this fascinating author. If any one rises up to say that he knows what all these conditions mean, then we reply, that even if he does know, we shall not believe it.

[The following review is by a second hand].

The work recently issued by Dr. Charles E. J. M. Sajous,—on the "Internal Secretions and Principles of Medicine," is at once remarkable and unique. It is a book of 788 pages, a book which treats exhaustively of its subject, which shows both searching study and unflagging industry. That the statements therein contained are uncommonly sweeping need hardly be suggested to those who have read the book, and for the benefit of those who have not, we give a brief summary of the author's conclusions.

The physiological function of the internal secretions of the adrenals is loosely to combine with the atmospheric oxygen in the lungs,

and to endow the blood plasma with its oxidizing properties; the organic compound thus formed in the lungs is called adrenoxin. The anterior pituitary body governs the functional activity of the adrenals and is directly connected with these organs through the cervico-thoracic ganglia, the splanchlinc nerves and the semilunar ganglia of the sympathetic system. The posterior pituitary body is the functional centre of the nervous system, and the anterior pituitary's co-centre in sustaining all vital proceses. The efficiency of the anterior pituitary body is maintained through the iodine compounds which are secreted in the thyroid glands. The thyroid gland, the anterior pituitary body and the adrenals are functionally independent and constitute the Adrenal System, which has for its purpose to sustain physiological oxidation and the metabolic activity of all tissues. All general symptoms witnessed in disorders in which the blood is invaded by a poison of any kind are, in reality, manifestations of over activity, insufficiency, or inactivity of the Adrenals.

Neutrophile leucocytes form: (1) peptones, which combine with adrenoxin to sustain general metabolism, *i.e.*, the vital process; (2) myosinogen, which combines with adrenoxin to supply contractile energy to muscles; (3) fibrinogen, which combines with adrenoxin to supply heat and energy to the blood.

Eosinophile leucoytes form hemaglobin, which combines with adrenoxin and is contained in the erythrocytes. Basophile leucoytes form myelin, the active principle of which, lecithin, combines with adrenoxin to develop nervous energy. Trypsin, the active principle of the speno-pancreatic secretion, protects the organs from the effects of bacteria, their toxins and all toxic albuminoids, including vegetable poisons and venoms.

The author goes on to say that the principal ingredient of diphtheria antitoxin is trypsin. Pulmonary Tuberculosis is due to adrenal insufficiency; Syphilis is due to adrenal insufficiency, and Mercury is a powerful adrenal stimulant; Iodine is nature's own stimulant. Pneumonia, Fever, pallor, are all due to the same condition. In tetauns, epilepsy, hydrophobia, puerperal septicemia and kindred disorders, the adrenals should be stimulated. Baccelli and Pasteur have saved all their cases in this way and recently Dr. Barrows of New York saved his case of puerperal septicemia because his solution of formaldehyde was just strong enough to stimulate the adrenals. Thus claims Dr. Sajous of Philadelphia. Since 1889 he has been working steadily and conscientiously— to tell us to-day that the science of Medicine is simplicity itself: there are no more difficult problems. Diagnose your case, if you like—but what does it matter? Whether

it be tetanus or typhoid, diphtheria or septicemia, the leading principle is to stimulate the adrenals. Keep the hypophysis in good condition and take care that the thyroidal iodine compounds are in abundance. In conclusion we take the liberty to state that the author—a man of very great ability—sees everything in the light of one idea, and thereby arrives at most remarkable conclusions. Much in the work is justified, many of the ideas are doubtless correct, but others are so extreme and have so little basis of fact that the work, as a whole, cannot be accepted in its entirety.

THE ANATOMY OF THE HUMAN PERITONEUM AND ABDOMINAL CAVITY, Considered From the Standpoint of Development and Comparative Anatomy. By George S. Huntington, M.A., M.D., Professor of Anatomy, College of Physicians and Surgeons, Columbia University, New York. Lea Brothers and Company, Philadelphia, 1903.

This very fine volume, superbly illustrated, and beautifully printed, is the work of a well known anatomist, who is President of the American Association of Anatomists. It represents part of the course in visceral anatomy, as developed during the past fourteen years at Columbia University. It commences with an account of the development of the vertebrate ovum and then especially describes the development of the alimentary canal and the peritoneum. The comparative anatomy of the foregut and stomach and of the peritoneum is then described with their development and also the development of the various organs connected with the alimentary canal such as the Liver, Pancreas and Spleen. A large portion of the book is devoted to comparative anatomy. There is a special part on the ileo-colic junction and connected structures in Vertebrates. The specialized morphological characters in Rodents and Ungulates are dwelt on. The best part of the book and the most useful is the part which treats of the morphology of the human cæcum and Vermiform appendix. This is magnificently illustrated and fully describes the various positions and anomalies of the appendix, and its peritoneal relations. Some examples are cited which show absence of the appendix; this is very rare and loss of the appendix from disease long past might be mistaken for this condition. The condition of floating cæcum and colon is much more common than the writer admits, and in our experience is much more common in females than males. Most of the examples in this work are taken from infants, in whom this arrangement is comparatively frequent.

There is much material in this work which is of great value, and it

has been collected with great care, and at the expense of much labour and time. The arrangement is rather complicated and somewhat too technical for general purposes. The various specimens illustrated are accurately described but rather too much space is devoted to them. The book is one which will be of much use as a work of reference and will be of value to anatomical specialists. It is a work which every public Medical library should possess, but it is rather too technical for the average man. It is provided with a good index. We congratulate the author on having produced such a handsome work, and one which gives evidence of so much research.

Studies from Institute for Medical Research, Federated Malay States.

Dr. Hamilton Wright, Director of the Institute for Medical Research, Federated Malay States, has issued a report upon an inquiry, lasting two years, into the etiology and pathology of Beri-Beri, that strange disease which is the scourge of the East. The report in its method and fulness is a justification of the high hopes that were formed of Dr. Wright's capacity when he was Fellow in Pathology in McGill University. The results of the enquiry are dealt with in 547 distinct paragraphs, covering every aspect of the case with no waste of words. The evidence against the usual theories advanced to explain the causation of the disease would appear to be convincing. These theories in the main are: Gelpke's, that beri-beri is due to the use of dried fish, infected by a trichina; Miura's, that it is due to the ingestion of certain kinds of raw fish; Grimm's, that it is caused by infected fish; Takaki's, that the dietetic insufficiency of nitrogen is the cause; Ross' theory of arsenical poisoning; Glögner's, of a hæmic plasmodium. Other theories connect the disease with some factors having to do with rice food.

The evidence against these views is set forth conclusively and one is led to appreciate the weight of Dr. Wright's own conclusions that beri-beri is due to a specific organism that remains dormant in certain localities, but having gained entrance to the body by the mouth, multiplies locally in the stomach or duodenum, gives rise to a local lesion and produces a toxin that, gaining the general circulation, acts on the peripheral terminations of both afferent and efferent ordinary and vital neurones to cause a bilateral symmetrical atrophy, and that finally the organism escapes in the fæces to again lie dormant.

Dr. Wright has been unable to isolate the microorganism and he refers to this failure in the following cryptic saying: "I regret to say that in a country like this where it is not unusual to be brought to

bed with specific organisms of ill-understood diseases, I cannot contribute to the birth-rate." This lightness of speech does not arise naturally out of such serious work.

The matter is by no means settled. Outbreaks occur on board ships, where the latrines are well cared for, and such an outbreak has ceased when a new supply of rice was obtained. The disease has practically disappeared from the Japanese navy and army, under the influence, it is claimed, of a better diet with less rice. Yet in opposition to this is the experience in the Dublin Asylum, that is if the outbreak in that institution was really beri-beri. Many of the problems connected with the disease remain untouched, even in Dr. Wright's report, snch as its prevalence during the rainy season, and its incidence upon the Chinese, but they will surely yield in time to such patient research.

BOOKS RECEIVED, NOTED OR RESERVED FOR LATER NOTICE.

F. A. Davis Company, Philadelphia.—The Internal Secretions and the Principles of Medicine. By Charles E. De M. Sajous, M.D. Vol. 1 1903.

D. Appleton and Company, New York and London.—The Surgical Diseases of the Genito-Urinary Organs. By E. L. Keyes, A.M., M.D., LL.D., and E. L. Keyes, Jun., A.B., M.D., Ph.D. 1903.

Materia Medica and Therapeutics, by Roberts Bartholow, M.D.

Obstetrics, by J. Whitridge Williams, M.D.

Surgery of the Head, by Bayard Holmes.

Lea Brothers and Company, Philadelphia and New York.—Progressive Medicine. Edited by Hobart Amory Hare, M.D. Vol. IV, Dec., 1902. Vol. I, March, 1903.

H. K. Lewis, London.—Practical Handbook of the Pathology of the Skin. By J. M. H. McLeod, M.A., M.D, M.R.C.P. 1903.

E. B. Treat and Company, New York.—Clinical Treatises on the Pathology and Therapy of Disorders of Metabolism and Nutrition. By Prof. Dr. Carl von Noorden. Translated by Boardman Reed, M.D. Part I, Obesity; Part II, Nephritis; Part III, Membranous Catarrh of the Intestines. 1903.

The Year Book Publishers Chicago.—Gynaecology. By Emilius C. Dudley, .M.D.

Kelly and Walsh, Singapore.—An Inquiry Into the Etiology and Pathology of Beri-Beri. By Hamilton Wright, M.D. (McGill), May, 1902.

RETROSPECT

OF

CURRENT LITERATURE.

Medicine.

UNDER THE CHARGE OF JAMES STEWART, F. G. FINLEY AND H. A. LAFLEUR.

Unilateral Renal Hæmaturia.

ESHNER, AUGUSTUS A., M.D. "Unilateral Renal Hæmaturia." *American Journal of the Medical Sciences,* April, 1903.

The writer enumerates the various known causes of hæmaturia, and alludes to the cases in which the cause is not ascertained and which have been called essential or idiopathic hæmaturia, hæmaturia without lesion, renal hæmophilia and various other synonyms. Such cases are becoming less frequent in proportion as careful anatomical study is undertaken. In some instances the symptoms have pointed to involvement of one kidney, and this has been proved by cystoscopy, ureteral catheterization, or cystotomy. Again relief of the symptom has occurred after various operations on the kidney—simple manipulation, nephropexy, nephrotomy, or nephrectomy. Sometimes the kidney has appeared normal, more often there has been some abnormality—displacement, obstruction of ureter, calculi, tuberculosis, neoplasm, or the lesions of chronic nephritis. In a case under the writer's care there were symptoms of renal calculus, with hæmaturia, in which, after the kidney was exposed, found apparently healthy, and left undisturbed, the symptoms disappeared permanently. A detailed review is given of forty-eight cases of similar or related character collected from various sources followed by tabulation and analysis. Thirty-one cases were in females, sixteen in males. The preponderance in females is probably to be accounted for by the greater frequency of neurotic disorders, of displacements of the kidney, and of circulatory derangements due to constriction of the waist by clothing, or in disorders associated with pregnancy and lactation. The youngest patient was 18, the oldest 76, the average age being 36. The right kidney was involved in 25 cases, the left in 23. The clinical diagnosis most frequently made were calculus, neoplasm or tuberculosis. The diagnosis is difficult, and can be made only by exclusion.

The unilateral character of the hæmaturia can be established by cystoscopic examination, ureteral catheterization, or direct inspection

of the ureteral orifices after cystotomy. Various operative procedures were adopted in the cases cited. The preferable course, after trying medicinal and non-operative measures without success, consists in exposure of the kidney, with incision of the organ itself or its pelvis, or stripping of the capsule, and the removal of any local lesion, or the restoration of displaced organ. If the hæmaturia persist, nephrectomy may be performed. Recovery followed in 40 cases, death in 6, and recurrence of hæmaturia in 2. In 16 cases no lesion was found at the time of operation. Displacement was found in 6 cases, renal congestion in 3, adhesions of the kidney in 2, inflammatory, degenerative or other destructive lesions of the kidney in 11, alterations of the pelvis of the kidney in 9. It is not certain that there was no lesion in the 16 negative cases, as in almost all of these no histological examination of the kidney tissue was made. The hæmaturia, and its cessation after simple exposure, manipulation or incision of the kidney, are difficult to explain in many cases. An analogy may be drawn with the relief afforded by abdominal section in cases of tuberculous peritonitis, and by decortication in nephritis.

Conclusions.—There occurs occasionally, in men and women alike, mostly at middle adult life, hæmorrhage from a single kidney,—from either with equal frequency, in many instances in consequence of demonstrable organic disorder, and in the remainder of obscure and undetermined origin. This hæmaturia may cease after simple exposure of the kidney, or after nephropexy, or nephrotomy, or in the failure of these after nephrectomy. In a final note the writer adds two cases that have come to his notice since the article was written.

H. A. L.

Surgery.

UNDER THE CHARGE OF GEORGE E. ARMSTRONG.

Twelve Cases of Malignant Disease Treated by the Roentgen Rays.

H. P. Moseley, M. D., *American Medicine*, January 31, 1903.

Both static and coil were used to excite the tube, which was placed as a rule from 15 to 30 c. m. from part treated. Exposure lasted from 5 to 10 minutes, and the frequency of treatment regulated by the effect produced. The most satisfactory tubes were found to be those giving out a large number of rays, which are not highly penetrating. Although high vacuum tubes produced more readily a reaction on healthy

skin, the curative effects were not as good as when low vacuum tubes were used.

The following summary of cases treated is of interest: Two cases of epithelioma of lip, one of six years duration, the other of five months. In both cases the ulcerating surface healed over perfectly. One case had no recurrence seven months after last exposure; the other was still receiving weekly exposures. One case of epithelioma of face of four years duration, producing marked ectropion of lower eyelid and considerable pain and discharge. The pain was almost immediately relieved and the discharge rapidly diminished. The ulcerating surface could not be made to heal over completely, two small areas persisting. Three cases of carcinoma of the breast, one primary and two recurrent. The primary case was of two years duration, very far advanced, and treatment had no effect whatever. Of the recurrent cases, one appeared six years after operation, with discharge from axillary scar and recurrences in scar itself. There were many reddened, hard, infiltrated spots over the chest anteriorly and also over scalpular area posteriorly, associated with oedema and great pain in shoulder and arm. The pain and œdema were greatly relieved, but the general condition steadily failed. The other case recurred six months after operation, nodules appearing in the skin along the line of scar. The area was excised and the skin grafted, but recurrence took place in this area and metasteses appeared elsewhere. Although very vigorous treatment was given, no irritability of the skin was produced, and the question is asked: "whether the pigment in a negro's skin might not act as a preventive to a Röntgen ray dermatitis." One case of carcinoma of the lower jaw, involving skin over it and cheek with ulceration of nodules was not benefitted in any degree. Two cases of carcinoma of inguinal glands, one following two and one-half years after excision of a small sore on labium said to be epithelioma, the size of a hen's egg, the skin adherent, and with a discharging sinus. No curative effect was observed. The other case was operated upon for epithelioma of prepuce and right inguinal glands. These were enlarged and were removed. Nine months later a second operation was performed for recurrence in the glands; four months later a third, and four months after, a fourth, when it was found impossible to remove them on account of adhesions to the iliac and femoral vessels. At this time the opposite inguinal glands were enlarged. These glands disappeared and no recurrence in right side has appeared nine months after operation. The case is still having Röntgen ray treatment. A case of sarcoma of pharynx, of one years standing, was not benefitted in any way. A case of sarcoma of the buttock operated upon and recurrence two years later, second operation with recurrence one and a half years later.

It was now inoperable, extending through the great sarco-sciatic notch into the pelvis. Treatment diminished the discharge and there was a temporary improvement in general condition, but only temporary.

Sarcoma of the temporal region; first operation 22 years ago, when "several small tumours from the margin of the left eye and orbit" were removed. Recurrence occurred three years later, when a very extensive removal was made, including a part of the zygomatic arch. No recurrences took place for 19 years. Under treatment the swelling subsided and the sense of discomfort was relieved, and the general condition improved. Patient was to report any recurrence but has not done so yet, six months after treatment.

From these and other cases the following conclusions have been drawn:—

1. The small superficial cases of malignant disease seem to be most susceptible to this means of treatment.

2. The relief of pain is a very prominent feature, and is often noticed after the first exposure. In cases which have not progresed too far it is almost possible to promise the anæsthetic effect.

3. It is impossible to determine from our present knowledge withont trial what cases will be favorably influenced by treatment, but patients should be warned not to be too hopeful.

4. The danger of burning is a real one, although with precautions it may be avoided. The diminution and discharge and change in it from being purulent and offensive to a serous one, may also be noted.

W. L. B.

Results of Decapsulation of the Kidney.

Harold A. Johnson, M.D. "A Study of Changes in the Renal and Perirenal Tissues of Dogs After Decapsulation." *Annals of Surgery,* April, 1903.

This research was undertaken upon fifteen dogs, varying in weight between twelve and thirty-five kilogrammes, with kidneys varying in weight between thirty and one hundred grammes. Changes were studied after two, four, and eight days; two, three and four weeks; two, and three and a half months.

Of the fifteen dogs operated upon five died; two from hernia through the wound, caused by having to remove the plaster of Paris jacket too soon, on account of irritation; one from the leakage of urine into the peritoneal cavity, the capsule being so adherent that portions of the cortex were torn away; one, in which, in addition to decapsulation, of both kidneys, the left renal artery was ligated; one dying directly from shock in which simple decapsulation was performed.

The relation of the peritoneum to the kidneys is different from that in man for in the dog it covers over three-fourths of the surface, and

there is also quite an extensive circulatoryânastomosis between the peritoneum and the kidney. As a result the peritoneal cavity has to be opened in any operation involving decapsulation of the kidney in the dog.

The changes noted are summed up as follows: First, the capsule of the normal kidney consists of two distinct layers, the outer much thicker, the inner very thin and the direct continuation of the intertubular connective tissue; second, in decapsulatin, the outer layer only is removed, leaving the inner lacerated but adherent to the kidney's surface; third, at first a thin exudate appears on the free surface of the kidney,, which, with the remains of the inner layer, gradually becomes a fibrous investment, resembling microscopically the normal capsule, in that it strips readily, and with the passage of time becomes firm.

Fourth, microscopical examination reveals the fact that it is in some cases thicker and in others thinner than the original; the former generally being true, and that in most cases it varies greatly in thickness in the same specimen.

Fifth, the structure, at least up to three and a half months, does not become differentiated into layers, but is one homogeneous mass of fibrous tissue.

Sixth that this fibrous tissue will form under adhesions and is to be recognized as distinct from them both macroscopically and microscopically.

Seventh, there is sometimes an infiltration with round-cells and a proliferation of the intertubular connective tissue of the cortex, without, however, affecting the glomeruli.

Eighth, in no case was there any considerable anastomosis between the renal and the perirenal blood channels. In one case, at the same time decapsulation of one kidney was performed, the renal artery of the other was ligated. This would presumably call for increased activity in the circulation of the decapsulated kidney. It was all, however, made up by the increased size of the renal artery and vein, and not through a peripheral anastomosis.

In his concluding remarks the writer points out the difficulties of drawing inferences as to the value of decapsulation as a curative or palliative measure in chronic glomerulonephritis, the chief one being that so far it has been found impossible to produce this condition in dogs. With reference to theories advanced to explain the causes of the benefits obtained in these cases, this research would seem to support the view advanced by Israel and Pousson, that they are due to relief of tension, and not to the establishment of a collateral circulation, as advanced by Edebohls. *W. L. B.*

Society Proceedings.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

April 3, 1903.

H. S. Birkett, M.D., President, in the Chair.

Thyroidectomy under Local Anæsthesia.

Dr. G. E. Armstrong exhibited a patient upon whom he had performed a thyroidectomy by cocainization. The patient, a young woman, had a large unilateral thyroid which was considered by the operator to be probably a fibro-adenoma. A one per cent. solution of cocaine was used and the skin injected over an area corresponding to Kocker's incision,—starting from a little below the entrance of the artery into the growth down towards the front of the growth, and thence towards the sternum, ending at the suprasternal notch. The incision was made, the outer flap reflected, the superior and inferior thyroid arteries secured, and the growth turned out and detached. The advantages claimed for this method were; that it was painless, that as the patient was conscious and could use her voice, the operator could be perfectly sure that he was not injuring the recurrent laryngeal nerve, and that an incision in this position allowed of free access to the part. Dr. Armstrong stated that he took the ground, that, if Kocher of Berlin, who had performed over two thousand operations upon enlarged thyroids, preferred it, it must be a good method of procedure. In several operations which he had performed by this method there had been no hæmorrhage. In the present case the wound was closed with a small, subcutaneous, glass drain, which was left in for twenty-four hours and then removed. The patient was exhibited two weeks after the operation had been performed.

Dr. McCrae stated that the tumour was a mixed growth, partly colloid, partly cystic and partly adenomatous, quite an unusual combination.

Dr. England asked whether there had been any symptoms of exophthalmos or whether the growth pressed upon the trachea.

Dr. Armstrong, in reply, stated that his reasons for operating were: first, because of the unsightliness of the growth, which was increasing pretty rapidly; and secondly because, while there was no tremor or exophthalmos, the pressure of the growth had interfered with breathing to such an extent that on going upstairs the patient had had to rest several times. In the present case he had first tied the arteries and

then divided the isthmus, but in some cases he had divided the isthmus first.

Excision of the Tongue.

Dr. G. E. Armstrong showed a patient upon whom he had performed excision of the tongue. The case presented all the points of interest which were associated with the question of cancer of the tongue and the method of dealing with it.

The patient had come to the hospital complaining of a lump under his tongue, and had first noticed pain upon eating, four months previously, but had not discovered the cause. Two weeks before coming to the hospital he had gone to one of the city hospitals, and the growth under the tongue was pointed out to him and two sections taken from it, but the patient was not informed as to what it was. Treatment had been carried out there for two weeks without appreciable effect. The pain was on eating only and invariably radiated round to the right ear. The man had not lost flesh so far as he knew, and had never had any other disease. He had been married forty years and had five children alive and healthy. There was no family history of any interest.

The growth had involved the right half of the under surface of the tongue just at its junction with the floor of the mouth, on to which it extended and covered an area as large as that on the tongue. It reached a little across the middle line, and thus involved half the under surface of the tongue and more than half the floor of the mouth. It was shown to be carcinoma. The advisability of performing a preliminary tracheotomy was one of the questions which had arisen, and one upon which the speaker confessed that he had held strong views for many years, considering it the only safe procedure. In his first five cases he had done it with perfect success, but in the sixth omitted it, and the patient died of septic pneumonia. He had then returned to the first method until a year or two previously, when he had been induced by a strong argument of Mr. Butlin's to omit it, but the consequence was increased mortality at once, from an occasional complication of septic pneumonia. Since then he had been in the habit of performing a preliminary tracheotomy one or two weeks before removing the tongue in order to allow the patient time to become accustomed to the tube. The advantage of this was that at the time of operation one could block the entrance into the trachea so that nothing from the mouth could get into the larynx, and then treat the stump as nearly as possible in an aseptic manner, keeping it clean and free, packing with iodoform gauze, and feeding the patient through a tube, until the wound had granulated over.

As there was extensive disease in the present case, Dr. Armstrong had done Butlin's incision on both sides, gaining free access to the submaxillary glands, those under the jaw and the little bunch at the bifurcation of the carotid, which were found enlarged; they were removed but did not prove to be malignant. It was a matter of principle to remove these as the cause of the enlargement could not be determined at the time of operation. The tongue had been removed to about two inches behind the growth, and it was hoped that the little stump would help the patient in speaking and masticating.

Old Dislocation of the Ankle.

Dr. Armstrong showed a man, 53 years of age, who, 26 years before, had been thrown from a horse and received an injury to the foot which a skiagraph (exhibited) showed to be dislocation of the ankle. The condition of the man's thumbs was also interesting, the proximal phalanx being dislocated in both hands by contracture of the palmar fascia. The man had long been a sufferer from rheumatism.

Sarcoma of the Breast.

Dr. Armstrong exhibited photographs of this case and related the history, of which the following is a synopsis:

The patient, a woman, aged 35, came to the hospital complaining of the size and weight of her left breast and also of free bleeding having taken place from it on several occasions. She had been born in Montreal and always lived there, had had the usual diseases of childhood, married at 25, gave birth to four living children, and used alcohol in the form of malt liquors, probably very freely. The growth had begun about eighten months before entering the hospital, while nursing, as a hard and painful lump, the size of a walnut, just to the inner side of the left nipple. She had tried to reduce it by rubbing on a liniment, but it had remained and slowly increased in size, being about the size of the fist about one year before. It had then begun to enlarge and got softer and about three month before admission, hæmorrhage occurred from it; according to the patient's statement about two quarts of blood had been lost. Since that time there had been frequent hæmorrhages. Dr. Armstrong removed it very freely together with a few glands showing inflammatory enlargement from the axilla.

Dr. McCrae reported upon the pathology of the tumour. It weighed about four pounds, and was for the most part benign, of the ordinary fibro-cystic nature, and it was to be supposed that up to the time of rapid enlargement it had been an innocent one. In very many places, however, sarcomatous cells could be found in quite distinct masses, and it was presumable that to this the extremely rapid enlargement of the growth in the past six months had been due.

Dr. Keenan had seen a case last winter where there was a clear history of fibro-adenoma having been present for ten years and then rapid enlargement following a slight injury. The growth had proved to be fibro-adenoma with sarcoma cells invading it.

Deformity following Anterior Poliomyelitis.

Dr. A. Mackenzie Forbes showed a patient with deformities due to anterior poliomyelitis and explained the nature and cause of deformities.

Pregnancy complicated by Ventro-Fixation.

Dr. J. J. Ross reported this case.

Dr. W. W. Chipman had been associatetd with Dr. Ross in this case and thought it a very interesting one and somewhat exceptional, in that there was a history given of a number of labours before the operation and a number after, and thus a comparison could be drawn between them. He had been called to see the case on Nov. 5th and found her rather a short-bodied woman in very urgent labour, with frequent, severe and protracted pains. He had noticed that the pains were not of the usual second stage character, showing very little of the down-bearing quality. On inspecting the abdomen the uterine tumour had been seen to be more than usually prominent and rather unusual in shape, rather wider from side to side than the usual pyriform tumour. There was the mark of a laparotomy wound and traction upon it during a pain and palpation had been difficult owing to a state of tonic contraction of the uterus. By vagina, the cervix had been found very high up and the topography of the parts obliterated by a firm tumour mass, about two inches in diameter, lying directly behind the symphysis pubis and ending in the anterior lip of the external os. Three methods of procedure were considered—Cæsarean section, turning, or forceps, and it was decided to attempt the latter first. Turning would have been difficult on account of the fact that the walls of the uterus were firmly contracted around the child and were unusually thin, while the after-coming head would have been difficult to deliver. The long axis traction forceps were used, and when applied the lock of the forceps was at the level of the external os and the fixation handles were out of sight. When delivery was completed the head was found vigorously moulded, but both mother and child made a good recovery and the latter showed no pressure paralysis.

Dr. Chipman pointed out that there were three features of special interest in this case, the nature and etiology of the mass in front, the difficulty in diagnosis and the choice of treatment. With regard to the first, it had to be remembered that in ventro-fixation, the fixation in-

cluded not only the peritoneum but also the rectal fascia and that when the wound healed by secondary intention as in this case, the point of fixation was more widely fixed. As dilatation took place it would be chiefly by expansion of the posterior wall. With the fundus of the uterus fixed, the anterior wall of the uterus could not expand, and it consequently went on thickening while the posterior wall was expanding, thus giving rise to a physiological tumour. The posterior wall thus expanded sufficiently to contain a full term child, the cervix was tilted further back, and the axis of the uterus altered. Although he had delivered four cases of pregnancy following ventro-fixation, the speaker had never seen this condition before. With regard to the question of diagnosis, the only thing which this mass might have been mistaken for would have been an ordinary fibro-myoma. As the latter was formed chiefly of fibrous tissue and its vascular supply was poor it was very apt to slough if handled roughly, and in such a case Cæsarean cestion would be the proper method of treatment. With respect to the choice of treatment, all one could say was that the patient, when seen five months after parturition, was found to have the uterus well fixed and in good position.

Dr. H. M. Kinghorn of Saranac Lake, read an exhaustive paper upon "The Early Diagnosis of Pulmonary Tuberculosis."

Dr. Lafleur in opening the discussion insisted with Dr. Kinghorn upon the necessity for accuracy in physical examination, which was the basis of all diagnosis, not merely relying upon new apparatus and refined bacteriological examinations. His experience was that physicians erred because they had not taken the trouble to make a careful examination of the lungs from the apex to the base; they often neglected to examine the apex from the back, which he thought was a very important proceeding. Too much stress, he thought, should not be laid upon the agglutination test, nor upon the positive or negative examination of the sputum, unless specimens were repeatedly and thoroughly examined; neither did he think that plates made by the X-Ray process added very much to the information which could be obtained by the ordinary methods of percussion and auscultation, if only these methods were carried out with care and thoroughness.

Dr. Girdwood called to the attention of the Society, the case of a young woman whom he had examined by means of the X-Rays, and found the bases of both lungs nearly solid, though there had been no previous intimation of tuberculosis. He pointed out that one of the earliest symptoms of phthisis was a shortened excursion of the diaphragm, and he believed, that with a wider experience of this comparatively new method, results of great value would be obtained. To

be of any value, the apparatus must be used by expert hands and eyes trained to recognise the normal as well as abnormal conditions.

Dr. Blackader remarked that great as was the difficulty in diagnosis of tuberculosis in its earliest stage in the adult, that difficulty was even greater in childhood. He discussed the opinion held by many authorities, that it is during childhood, tuberculosis establishes itself in the system, and whilst it was his view that the record of autopsies did not confirm this opinion, yet everything pointed to a still more zealous care of children. He referred to the fact that in early life it was to the glands rather than to the tissues, they must look if they would find the earliest seat of trouble; to the bronchial glands rather than to the lungs themselves. He admitted the great difficulty in the diagnosis of this deep-seated affection in children, and referred to two conditions which were of use for guidance—loss of weight and persistent fever. He emphasized the value, as diagnostic signs, of the physical history, the tendency of any simple affection to run a tedious course, and the enlargement of the supra-clavicular glands. In conclusion, he demanded a greater consideration for anæmia in children, as being one of the early symptoms of tuberculous infection requiring something more than a course of iron and arsenic, and calling for treatment by fresh air, especially if the anæmia were accompanied by enlargement of the glands.

Dr. G. Gordon Campbell referred to the autopsies which yielded a large number of old tuberculous lesions in the lungs. In these cases it must have happened that the patient was devoid of symptoms specifically pointing to that condition. He considered that examination in cases of ordinary colds was not thorough enough, and that they must not exclude tuberculosis because cough and expectoration were absent.

Dr. Nicholls in the course of his remarks called attention to some points of importance in the diagnosis of tuberculosis, that had suggested themselves to him in his laboratory experience. After a practical knowledge of the ordinary methods, his conclusion was that of Drs. Kinghorn and Lafleur, that the careful physical examination of the patient was of prime importance in early diagnosis. Sputum was always examined as a matter of routine, yet several fallacies appeared and the test had its limitations, specially in the early cases. Dr. Nicholls had repeatedly failed to discover the bacilli after repeated examinations, where there had been positive clinical evidence of the disease. Speaking of the methods of examination, he referred to a number of bacilli, —the Smegma, the B. Moeller, Butter bacillus, the B. of Rabinowitch, the B. of Lustgarten and the B. of Lepra—which like the tubercle bacillus were stained by the ordinary Gabbet method in which the mineral acid was used as a decolorizer. Pappenheim, Fraenkel and

Ophuls, among others, had noted such bacilli in cases of gangrene of the lungs and the researches of Laabs (1901) went to show that those bacilli were present in the mouth, so that without special precautions one was liable to draw erroneous conclusions. Consequently Dr. Nicholls had given up the Gabbet method and used a stain composed of a saturated solution of methylene blue in absolute alcohol, to which was added 1% of corallin as a decolorizer. This decolorised all bacilli except the tubercle and leprosy bacillus in three minutes. The method of E. W. Hammond referred to by Dr. Kinghorn, he had found very useful. Brieger noted that where bacilli were not present in the sputum, they had been found in the fæces. With regard to the agglutination test Dr. Nicholls had worked with this in association with Dr. Richer, and their results were in accord with those of Arloyng and Courmont, as to the test in diagnosis. The difficulty with the test, was that it required great care and it did not appear to be absolutely specific. Like others, Dr. Nicholls had found positive reactions with the dog, sheep and the cow, and the fact that cows gave the reaction of 1-15, or even higher, showed that the test was likely to be of little use in cattle. In human beings it was to be remembered that certain drugs, such as Eucalyptol, Guaiacol and corrosive sublimate would confer agglutinative powers upon the blood serum. Before much could be said of the test, however, in the early diagnosis of tuberculosis more work would have to be done. As yet, they did not know at what stage the agglutination reaction appeared, or how long after apparent cure it might remain. Again, observers were by no means agreed as to the wisdom of basing prognosis upon the intensity of the reaction. The test was valuable to a certain extent, when taken in association with other means of investigation.

Dr. Richer discussed the agglutination test, and expressed the belief that the method would in time be proved to be of great value. In regard to tuberculin, he was of the opinion that it was a perfectly harmless substance and had always proved so in his hands.

Dr. Jamieson said that tuberculin was a very reliable test in cases strongly suspicious of tuberculosis and could be used with safety. He quoted cases to show that the test must be used with thoroughness and sometimes frequently repeated before its value could be brought out.

Dr. Shepherd had obtained some excellent results with tuberculin, as a means of diagnosis in surgical tuberculosis, in one case of injury to the knee joint, where there had been no suspicions of gonorrhœa, the joint would not get better and tuberculin was given. The patient did not react to 1 m. or 3 m., but to 6 m., he reacted sharply, and eventually the condition proved to be tuberculosis of the knee. He had also seen tuberculosis of the bladder react very well. There were two

exceptions to the rule of reaction in surgical cases, namely, that tuberculin did not react with tuberculous peritonitis, and that it did react in cases of gonorrhœal rheumatism.

Dr. Kinghorn agreed with Dr. Nicholls that Gabbet's stain was very unreliable and insisted upon the necessity of great care in making microscopical examinations. He quoted cases to show the value of the X-Ray method, and others to show its uncertainty, but he concluded, that all methods were only accessory to a thorough physical examination.

April 17, 1903.

A Case of Aneurism.

Dr. J. Alex. Hutchinson and Dr. W. E. Dixon.

J. P., aged 48, furrier, admitted to Montreal General Hospital, February 12th, 1903, with swelling and pain at bend of elbow.

Present Illness:—Began five weeks before entrance. When assisting in wringing out some clothes, he was suddenly seized with pain in the arm, and towards evening he noticed that it was swollen,—at times there is considerable pain felt about the tumor.

Present History:—Patient has not done any very heavy work,—he has used alcohol for a number of years,—he gives no history of syphilis.

Present Condition:—Patient has a pulsating and expansile tumor, just below the bend of his right elbow. It measures 2 x 3 inches. On auscultation, a distinct bruit is heard over the tumor. He is unable to grasp anything forcibly with the fingers of his right hand.

Circulatory System:—The heart is slightly enlarged to the left. He complains of præcordial pain at times,—when the arm is extended the pulse in the radial and ulnar arteries of the right wrist cannot be felt, but when the arm is flexed it can be felt, although much weaker than those of the left side.

Treatment:—Digital compression by relays of students was begun on February 21st, at 2.15 p.m., and kept up for thirty hours, each student holding the brachial artery for five minutes. At the end of thirty hours, a slight superficial pulsation was still felt, and a pad was placed over the brachial artery for another thirty hours. Morphine, hypodermically, was used to alleviate the pain.

The patient has reported from time to time. The tumor is smaller, quite solid, and firm,—no pulsation is felt, except just above the enlargement; this, probably, is due to one of the anastomosing arteries. There is still considerable numbness of the fingers, and the grasp of his right hand is weak.

Arterial Gangrene and Fractured Femur.

Dr. J. Alex. Hutchinson and Dr. W. E. Dixon.

A. L., aged 44, laborer, received a compound fracture of the left thigh, at the junction of the middle and lower thirds, on November 3rd, 1902, and was admitted to Montreal General Hospital same day.

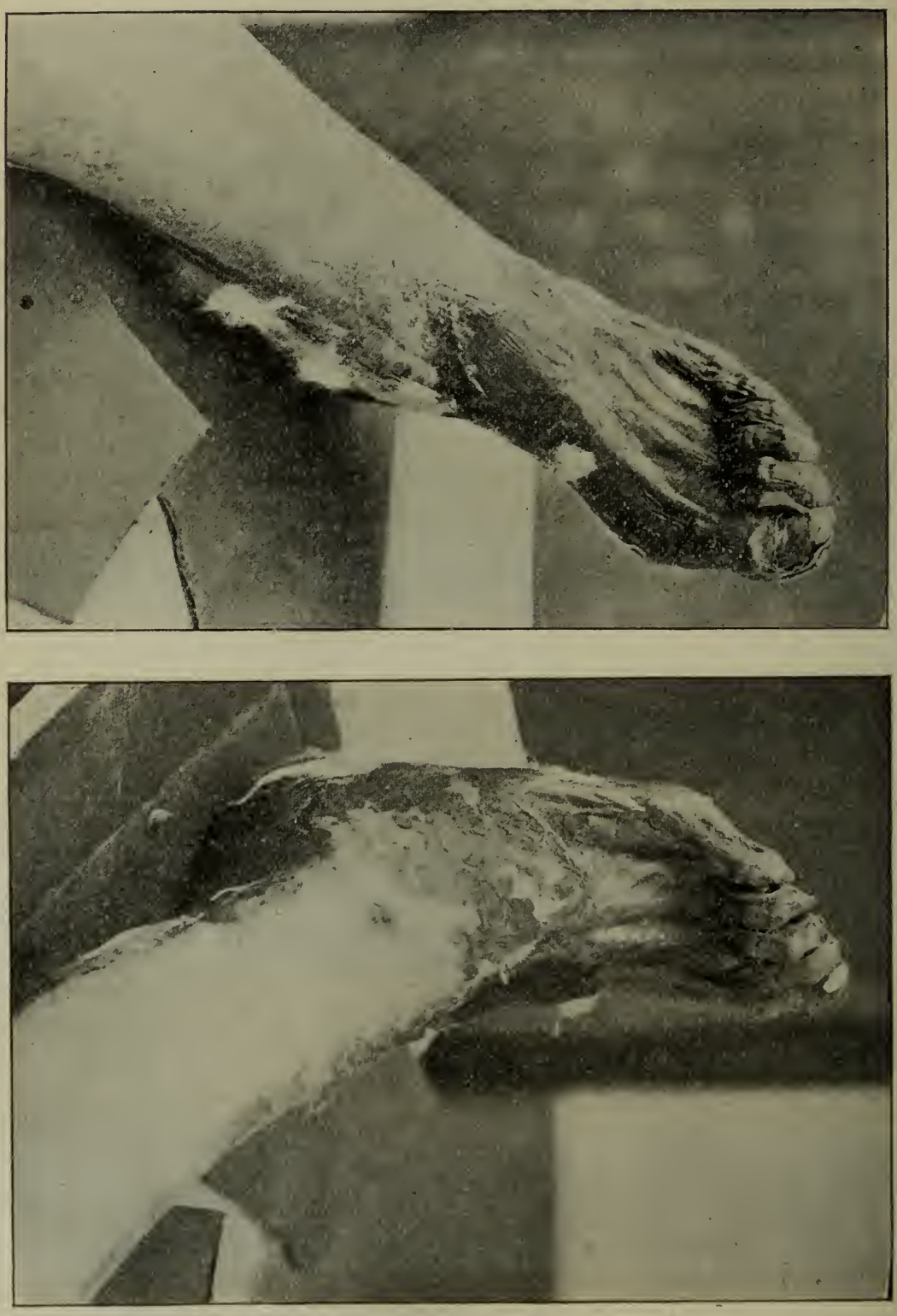
The wound was carefully cleansed with pure carbolic, and packed with iodoform gauze, hæmorrhage was brisk, and during the night the wound had to be packed with gauze moistened with adrenalin to stop the oozing. There was considerable overriding of the fragments, producing about 2½ inches of shortening. The fracture was caused by his being struck by a bar of iron which was being swung on a derrick,—there was considerable bruising of the leg and foot, due to his being knocked up against some stationary piece of machinery. He was carried for a quarter of a mile on the back of a fellow-workman, his leg dangling in the air during this journey.

On November 6th, patient was taken to operating room and the wound was explored,—Buck's extension was applied, with coaptation splints. No pulsation could be made out in the tibial vessels. November 7th, the foot was cold, the dorsum showing a dark colored area. The extension apparatus was removed, and heat applied to the foot. During the following two weeks, well marked arterial gangrene developed, involving almost the whole foot and lower third of leg. The foot took on the claw-like shape and marbling appearance. There were no constitutional symptoms of putrefaction.

On December 8th, owing to the bad position of the fractured femur, under ether anæsthesia the parts were laid open, the ends of the bone freshened, and silver wire sutures introduced, and the limb put up in a McEwan splint. In six weeks firm union was established. By the end of January, or about three months from the original accident, a line of demarcation, a little above the ankle, had formed, showing moist gangrene.

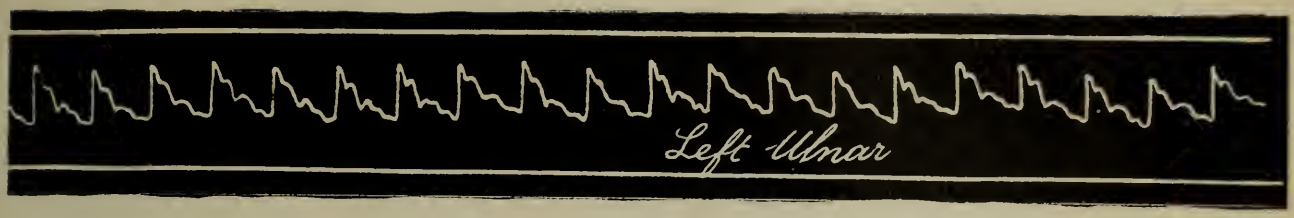
Amputation below the knee joint was performed on January 29th, and at the operation it was noticed that the tibial arteries were small and did not bleed, but numerous small branches, apparently coming from the surface about the knee joint, were seen. The flaps showed little tendency to unite, and in a few days were partly gangrenous, exposing the bone.

On February 26th, re-amputation abount 2 inches higher up was performed, care being taken at this time not to separate the subcutaneous tissue from the muscles. The result was more satisfactory, but in front a small portion of the skin again broke down; this is now

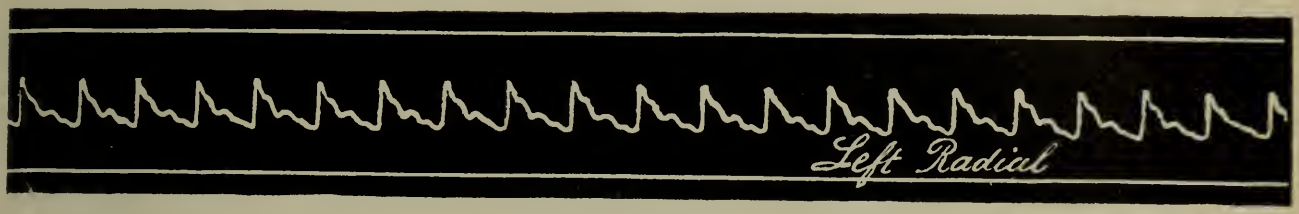


To illustrate Dr. Hutchinson's case of Gangrene of the Leg.

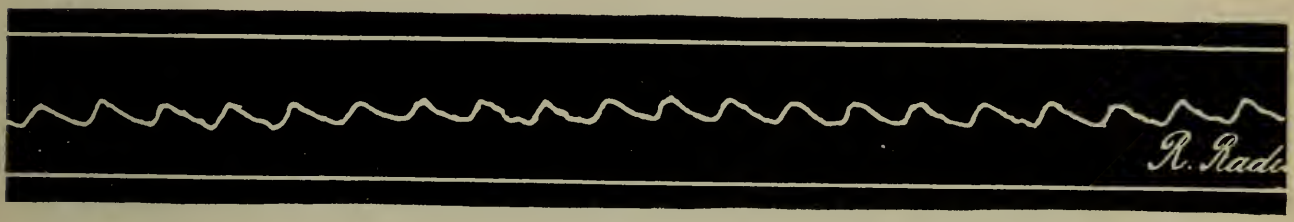
Left Ulnar.



Left Radial.

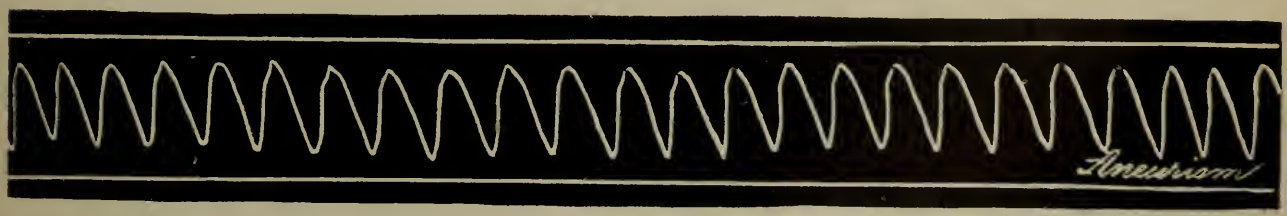


Right Radial.



Right Ulnar.

Aneurism.



Aneurism of Right Brachial.

healing by granulation, and the stump presents the bone well protected by a large pad of posterior muscles.

The pathological report by Dr. Macrae showed that both tibial arteries were plugged by a dark red clot.

This case is evidently one of injury to the femoral artery, in the neighborhood of Hunter's canal, sufficient to have produced one or more emboli.

When the alteration in the temperature of the foot was first noticed, it was thought that the coaptation splints might be producing pressure, but when these were removed, marked overriding of the fractured ends took place, and it then was a question if this might not be producing pressure; however, after a few days the distribution of the gangrene made it apparent that the tibial vessels were interfered with, the distribution of the anterior tibial showing the change a few days earlier than that of the posterior tibial. It will be interesting in the future to note whether the stump, with its limited blood supply, will stand the pressure of an artificial limb.

Epithelioma of Lip.

Dr. J. Alex. Hutchinson and Dr. E. Hamilton White.

Patient C. W., aged 56, came to Montreal General Hospital, March 10th, with large fungating mass on lower lip.

Present Illness:—Patient stated that he had noticed a sore on his lip for twelve or fourteen years. This, up to the summer of 1901, was only of the nature of a fissure covered with a scab, which he used to pull off. At that time (Aug., 01) he noticed a small lump appearing at the site of the fissure, and consulted a surgeon. He was told that it was cancer, but would not undergo an operation. Growth much more rapid since September, 1902. He gives a history of smoking a short clay pipe, and shows a typical notch in the teeth to the left of the median line opposite the site of the original fissure. He has lost 10 lbs. weight since September, 1902.

Past and Social History:—No history of syphilis, no family history of cancer or tuberculosis.

Present Condition:—Patient fairly well nourished, skin and mucous membranes good color. There is a large fungating mass springing from the muco-cutaneous border of the lower lip.

The growth involves $\frac{3}{4}$ of the length of the lip, more to the right than the left of the median line,—it shows breaking down in spots, and has the characteristic offensive odour. The mass is $2\frac{1}{2}$ inches in length, roughly, cylindrical $1\frac{1}{2}$ inch in diameter. Further examination shows that it is pendulous, hanging over the chin, the skin of

the chin not being involved. The mass is very hard, bleeding readily on handling or removing dressing. There is enlargement of the submental glands more marked on the left side. Glands at angle of jaw palpable on both sides. Complains of pain of a burning and aching character.

On March 12th, growth was removed by a simple scaphoid incision by Dr. Elder, in Dr. Hutchinson's absence. Dr. Macrae reported that incision was beyond the new growth, though only a very small margin intervened at places. Healing was rapid and complete. Glandular enlargement below chin disappeared.

On March 26th, operation for restoring the lower lip was undertaken by Dr. Hutchinson. A wide V-shaped incision was made which involved the removal of practically the whole of the remaining margin of the lower lip, the angle being prolonged 2 inches below the chin. The tissues were freed from the lower jaw on each side and brought together with silkworm gut sutures. Healing, as before, was uneventful. The submental space was explored during operation,—no glands found. All of the fatty tissue was removed from the space.

Dr. Armstrong said that he was inclined to trust to the V-shaped operation rather than to the more elaborate and difficult methods. He thought that on the whole the simpler method gave quite as satisfactory a result and possessed the advantage of being much more easily carried out.

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EXOGENOUS PERFORATIVE ULCERATION OF THE INTESTINES.

BY

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Employing here a title which is unusual, if not new, it is necessary perhaps, at the start, to state clearly what is included under the term.

Perforation of the wall of the stomach or intestine may, in the first place, be due to causes other than ulceration, may be the effect of trauma or of some acute necrotic process, the whole thickness of the wall over a considerable area dying, and rupture resulting as a consequence. In the second place, where a definite ulcerative process precedes the perforation, that process may originate either on the mucous aspect of the gut,—and this is the more common,—or may develop from the serous surface, proceeding inwards. The former of these processes is *endogenous*, the latter, *exogenous*—developing from without—nor can I call to mind any term which more accurately indicates and includes the cases I now wish to bring forward, than this of exogenous ulcerative perforation.*

My attention has been turned to this condition by a striking case which recently came to the post mortem room at the Royal Victoria Hospital. Before further discussing the subject, it may be well to give a brief account of the case in question. For the clinical notes I am indebted to Dr. Bell.

Autopsy 1, '03. This was a boy of 15 who gave the history that he had always lived on a farm and for the last few years had worked there. In the beginning of November, 1902, he was suddenly taken ill with a dull persistent abdominal pain, so considerable that he immediately took to bed. There was no vomiting nor diarrhœa, but a slight degree of constipation. The pain was generalised from the onset, although, according to his home doctor, there was a period

* A name for the condition in many respects admirable is that of "primitive ulceration of the peritoneum," employed by McAdam in 1834, but this does not fully indicate the perforation associated therewith.

of epigastric localization. Some three days after the onset diarrhœa developed and the vomiting of bile-stained fluid, which had been present, ceased. He rapidly lost flesh. This condition had continued for close upon a month before he was admitted. On admission he was thin and delicate-looking, with a temperature of 100°, with distended abdomen and generalised tenderness, most marked in the right lower quadrant; the heart beats were weak. The indications were those of appendicitis, and upon December 4th, Dr. Bell cut down over the appendix when, upon opening the peritoneum, thick brownish fæcal pus flowed out. There was in fact an extensive abscess in the region of the appendix and, in the matter removed,

(1) Ulcer at the lower end of the ascending colon, actual size, showing the curious raised and perforated condition of the mucosa, and, at *a*, the fistulous opening through the muscle wall.

two concretions were recovered, each the size of a bean. Following upon this operation there was profuse fæcal discharge from the wound for some days. This continued, although the wound showed good signs of healing, save for the presence of the fistula.

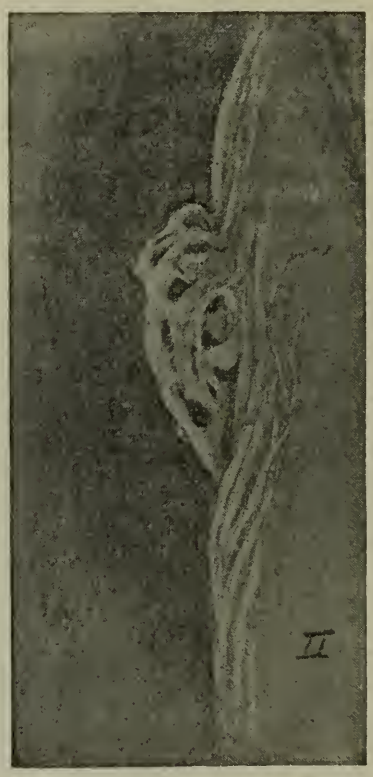
Upon the 30th of December, the discharge still continued and he complained of general abdominal pain. On the 31st there was so much pain and tenderness with vomiting that a second operation was performed, and the intestines were found matted together, two perforations being discovered, one in the cæcum, the other in the

ileum near the ileo-cæcal valve. The fæcal fluid still welling out, further examination led to the discovery that there was a third perforation of the cæcum which also was sutured. But the patient continued to sink and died upon the morning of January 1st.

It is unnecessary to go into all the conditions found at autopsy, but the condition of the abdomen is of importance. From the old wound in the right groin about 30 ccm. of thin coffee-and-milk fluid of rather fæcal odour was removed. On opening the second median operation wound and more particularly on attempting to separate the matted intestines over the pelvis, purulent fluid welled out, while another sac of pus lay between the pyloric end of the stomach and the ascending colon. There were thus, in addition to the original perityphlitic abscess cavity, at least two pus sacs, the larger, containing an admixture of fæces, being deep in the pelvis and having a roof formed of the matted coils of the ileum. These adhesions were firm and apparently of some age, so that they had to be cut through. Upon examining the intestines, which were removed with great care, there were no signs of ulceration until a point 5 cm. above the ileo-cæcal valve where there were indications of two perforations close to each other, one of which had been sutured. The cæcum which lay exposed to the original operation cavity was covered by a dirty inflammatory layer. On examination the appendix was found rather thick, coiled upon itself, and adherent by organised adhesions to the cæcum. It showed a well marked area of perforation in its middle third, the interesting point being that by a thickening of the mucosa, the lumen of the appendix was completely obliterated so that a fine probe could only be pushed through from the gut after the employment of considerable force. In the colon, in addition to those which had been sutured, two other perforations were found, one some four inches above the valve, the other nearer to the hepatic flexure. It is to the ulcerations in connection with these two that I wish particularly to direct your attention.

Regarded from the outer side, these two perforations differed considerably. The upper one showed a complete loss of tissue for a length of about 3 cm.; there was thus very free communication at this point between the posterior and inner portion of the colon, and the peritoneal cavity or, more correctly, the walled-in collection of pus lying immediately to the inner side of this area. The lower perforation, on the contrary, showed a relatively small external orifice about 2 m.m. across, reaching through the muscle wall. In fact, the perforation here was of the nature of a fistulous tract. Yet, seen from the inner side, these two perforations were clearly of the same

peculiar character. Surrounding the edges of the upper of the two was a fringe of loose overhanging mucosa, not forming an unbroken surface, but exhibiting numerous losses of substance or holes of irregular shape. This appearance was even more characteristic in the lower and smaller ulcer near the valve. Here the mucosa showed one large, irregular central orifice, large enough to admit the end of the index finger, while around this the mucosa with its multiple perforations projected upwards in a dome-like shape when placed in water. Through these perforations could be seen the smooth floor of the submucosa with the small fistulous orifice passing out from it



(2) The same ulcer in elevation, actual size, to demonstrate the distension and projection inwards of the mucosa.

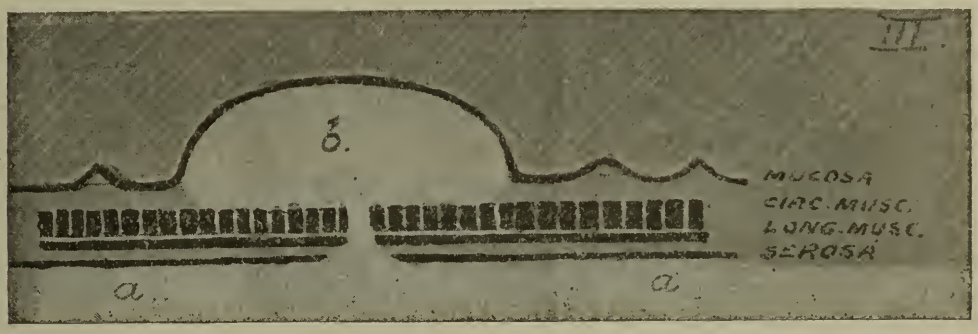
through the muscle wall. The appearance of this perforated or netted mucosa may be likened to that of a piece of mace.

Examining now the other regions of perforation which had been sutured, the mucosa at these points was seen to exhibit the same curious characters.

Save for these regions of ulceration, the mucosa neither of the ileum, cæcum or colon showed any signs of follicular swelling or of inflammation. The ulcerations were the only signs of disturbances affecting the mucosa.

To sum up, we have here the history of perforative appendicitis

with localized abscess formation which had developed some eight weeks before death. The operation had not taken place until about a month after the beginning of the condition and at the time of operation already there had been perforation of the ileum and the cæcum in the neighbourhood of the pus collections, so that when the pus was drawn out of the groin, fæces passed out freely as well and continued to pass. Clearly also, whether as a secondary infection or as an original condition, the collections of pus had become somewhat extensive so that there were two almost, or completely, walled in collections, one in the pelvis, the other to the inner side of the cæcum. I could not make



(3) Schematic representation of the mode of development of the ulcer. *a.*, *a.*, peritoneal pus. *b.*, distension of the mucosa by pressure of pus in the submucous tissue.

absolutely sure at the autopsy whether these connected freely with the original collection in the appendix region. The pelvic abscess appeared to do so; the other not.

The important point is that the ulcerations corresponded with these pus collections and I can only explain the appearance of these ulcerations with their curious mace-like covering of mucosa by supposing that the pus organisms had affected the serous coats of the bowel leading to the ulceration of the same, that the infection had then spread into the loose and vascular sub-mucosa; that here there had been an extensive distension of the part either through pressure of the pus from without or by the development of a distinct submucous abscess and that, as a final stage, the mucosa thus distended was cut off from its blood supply, had become eroded and perforated at several points, the pus now pouring into the lumen of the bowel.

No other course of events could, it seems to me, have led to this peculiar appearance of the bowel wall.

In May, 1900, I brought a somewhat parallel case before the Montreal Medico-Chirurgical Society. It was a curious case, one that I never felt satisfied that I had wholly fathomed. It was that of a woman of fifty-seven, a patient of Dr. Bell's, who had

been in excellent health until six months previously when obscure paroxysmal pain was noted in the left side of the abdomen with soreness there which eventually spread over the whole abdomen. For some weeks before admission the appetite gradually failed and there was progressive loss of flesh and strength. The bowels were regular and there was no diarrhœa. Upon admission there was some fulness of the abdomen with slight tenderness more particularly over the right side. On May 10th, 1900, Dr. Bell made an exploratory incision and found the omentum adherent to the parietes and studded with numerous partly caseating small areas or nodules. There was a reddish but otherwise clear fluid in the pelvis which was mopped out. Owing to the extensive adhesions and the absence of any sign of acute perforation, nothing further was done beyond placing a drainage tube. After the operation the patient did not recover strength and gradually failing she died on the 17th.

At the autopsy the thoracic organs were healthy loooking and there were no signs of tuberculosis, unless a slight puckering of the left apex might be considered as such. The condition was apparently confined to the abdomen. Here all the intestines were matted together and adherent to the parietes by rather loose, dirty looking adhesions throughout which, over the surface of the intestine, more especially in the lower quadrant, were very numerous, whitish, irregular little patches, some of which had a shaggy, villous appearance. They varied in size and differed from ordinary new growths in that their centres were apt to be broken down. They differed from ordinary tubercles again in that their centres were more purulent than caseous.. The intestines were removed *en masse* and opened *in situ*. Almost from the beginning of the jejunum was a remarkable ulcerative condition of the gut. Every two or three inches was a perforation, about three to four mm. across, through the greatly atrophied wall of the intestine. The walls of the perforations were absolutely clean cut. Examining the organ from the serous surface, each of these perforations corresponded with one of the nodular masses found there. On more careful examination of the serous coat over the jejunum and ileum, *incomplete ulcers could be seen, the serosa being destroyed, the mucosa not yet invaded.*

That the ulceration was from without inwards in this case was further shown by the fact that in the jejunum some of the ulcerations were bridged over by one of the rugæ. Another remarkable point was that there was no fluid in the peritoneal cavity and although there were so many perforations, obviously the dense matting together of the intestines had prevented the development of a generalised perforative peritonitis. To a less extent the condition affected the trans-

verse and descending colon. Putting everything together, I was led to the conclusion that we had to deal here with a primary tuberculosis of the peritoneum of chronic development with a terminal streptococcic infection, for the latter organisms were obtained in two separate cultures from the heart blood. Although I did not obtain tubercle bacilli on section, the nodules on the serous coat showed numerous giant cells. I cannot explain the multiplicity of these perforations with the little evidence of acute disturbance of the peritoneum save on the supposition that they were a terminal event.

The point of resemblance in these two cases is the existence of ulcers associated with the perforated intestine and showing an incomplete destruction of mucosa so that a portion of this had been left bridging over the loss of substance beneath. This condition of the mucosa in itself must indicate that the inflammatory process had not been on the mucous surface; had it been so, the whole of the mucosa would surely have been destroyed before the ulceration extended through to the serous surface. The ulceration must have begun on the latter and the mucosa have been the last portion to be affected. Indeed, the second case, as I have already stated, showed regions exhibiting well marked ulceration of the serous surface which had not proceeded so far as to penetrate the muscle wall.

While during the last quarter of the nineteenth century and these first years of the twentieth, there has been a constantly increasing interest manifested by physicians and surgeons alike in the diseases of the digestive tract and peritoneum, so that medical literature is rich in observations bearing upon ulcerative and perforative conditions of the mucosa of the stomach and intestines, a survey of the literature, —rapid it is true—made by me during the last fortnight has impressed me by the singular paucity of recorded observations upon the pathological anatomy and clinical symptoms of perforation of the intestines proceeding from without and due to causes other than trauma.

On second thought this lack of observations is recognized as being perhaps natural and to be expected. Primary peritoneal infection is, in the first place, distinctly rare, whereas the mucous membrane of the intestine is exposed to many infective agents, notably the microbes of Typhoid and Tuberculosis. As a consequence, ulceration of the gut is much more liable to originate on the mucous than on the serous surface. In the second, as shown by the recorded cases, when a secondary purulent peritonitis is followed by perforation and escape of the pus into the intestines, the symptoms due to the peritonitis itself or to inflammation of the viscus from which the peritonitis has

spread, are of first importance; the perforation of the gut is only a tertiary and often the terminal event; the symptoms of the same are masked by pre-existing peritonitis; at most, when the perforation occurs, and fæcal matter escaping commingles with the pus already present, that preexisting peritonitis assumes a graver and more malignant type. The habitual lack of sustained daily study of the stools by the physician makes it easy to overlook what should be the most characteristic symptom of such perforation, namely the sudden appearance of pus in the stools. And in the third place, even when there is a localized growth of pus-producing organisms, in any serous cavity, the extension of the suppurative processes into the surrounding viscera with resulting perforation is, all things taken into consideration, the less common event. By this I mean that, if we take into account the frequency of general or localized peritonitis, extension of the suppurative process into or through the walls of the viscera, is the exception and not the rule.

Well on into the middle of last century, there was a controversy as to whether it occurred. The literature upon the subjects of Empyema, Pericarditis, and Peritonitis is enormous and I cannot pretend to have looked through a tithe of the authorities who might possibly refer to this condition.

So far as I can find out Scoutetten, in the beginning of the nineteenth century, was the first to call attention to the fact that if a patient suffering from peritonitis lives for some time, there is a liability for peritoneal erosions to occur which later become true ulcers. (Arch. génér. de Médecin IV., 1822, p. 392). McAdam in 1834, in his article on Peritonitis in Forbes' Cyclopædia of Practical Medicine, also refers to these peritoneal ulcers, but only in 1841 have I come across a definite description (by Adams, of London) of exogenous ulceration with perforation.

I refer to obvious ulcerations unaccompanied by immediate adhesion to other viscera—for I need not say that the development of fistulous communications between the abdominal viscera was recognized much earlier.

We have to recognize the remarkable protective powers of serous membranes; that whereas inflammation easily extends to them from below, from the sub-serous tissue, and when once it affects them is liable to spread throughout the whole of the cavity which they bound, the infective agents becoming widely distributed by the agency of the lymph present in the cavity, that inflammation nevertheless once set up, remains superficial and is not, or is but rarely, erosive. The loose attachment of the endothelial cells whereby when infected and

irritated they are easily cast off, the great vascularity of the sub-endothelial layer, whereby that becomes flushed out by the abundant inflammatory exudate and so freed from infective agents; the rapid formation of a fibrinous coagulum or plastic exudate upon the surface stripped of its endothelium, such exudate of itself forming a protective covering and preventing further infection from without; each and all would seem to favour this lack of deep extension.

Notwithstanding, as already pointed out, perforation can and does occur. Although nowadays we are all prepared to admit its existence, I am inclined to think that we still imagine that it is most exceptional and do not sufficiently take into account the frequency of its occurrence. The most frequent cases of peritonitis are, I need scarcely say, those in association with appendicitis, and when in the course of this disease fæcal fistula develops with persistent escape of fæces through the operation wound, we are, I think, all apt to attribute this either to further gangrene with rupture of the appendix and its remains, or to a combined ulcerative cæcitis and appendicitis, so that perforation of the cæcum is regarded as a part and parcel of the primary disease, instead of being regarded, as in the majority of instances it ought to be regarded, due to exogenous perforation of the large or small bowel secondary to localised purulent peritonitis.

These two cases led me to look through our post mortem notes and determine from them the frequency and nature of cases of exogenous ulceration and perforation of the stomach and intestine and I was surprised to find that, contrary to my preconceived impression, such perforation of the bowel is by no means rare.

From January 1st, 1895, to December 31st, 1902, there were performed at the Royal Victoria Hospital altogether 700 autopsies—in eight years that is—and of these we have a full and complete record.

Taking first the cases of definite *endogenous* perforation I find that among these 700 cases we had 3 with perforation of the *Stomach* from within, either from round ulcer or from cancer; of the *Small Intestine* 18 cases, of which 15 were typhoidal perforations, 3 tubercular; of the *Appendix* 28 cases, all of perforative appendicitis; of the *Colon* 3 cases, and of the *Rectum* 7, these last being all cases of fistula. In all then, the 700 cases yielded 63 of endogenous perforation, or exactly 9 per cent. In addition to these 63 I came across about 15 cases which must be classified as doubtful and in which it is impossible to say whether the ulceration showed itself first upon the serous or the mucous surface. Among these I include cases of trauma as from kicks, railway accidents, shunting accidents, etc., cases of anæmic necrosis and of gangrene secondary to hernia and obstruction of various

forms. I say about 15, for in the first part of my search from the reports themselves, I neglected this series of cases and in going over them again rapidly, I may have overlooked one or two.

But now of diseases definitely *exogenous*; I came across no less than 17 or 2.43 per cent. Let me analyze these cases.*

Stomach.

There were three cases of ulceration with perforation from without the stomach. One of these was a cholecystico-gastric fistula.

(3) *Case 70/98*, Mrs. B. M., æt. 85. Dr. James Bell.

This was a case of fracture of the femur. At the autopsy the gall-bladder was found greatly contracted and contained opaque, whitish, mucoid material. From it there passed a fistulous opening into the stomach large enough to admit a cedar pencil. The common bile duct was distended to the size of the index finger. Bile papilla absent and replaced by two ulcerous openings communicating with the end of the common bile duct. Here at the ducdenal end of the duct was a somewhat mulberry-like calculus formed of yellow, inspissated bile pigment.

(4) The second case was one of abscess originating in the spleen and perforating the cardiac end of the stomach.

Case 31/96, W. C., male, æt. 38. Dr. James Stewart.

This was a case of gangrene of the lung with multiple abscesses. There was a sub-capsular abscess of the upper aspect of the spleen the size of a walnut. This communicated by branching tracts with the necrotic abscess cavity situated between the spleen, diaphragm and stomach. The diaphragm was eroded but not perforated. In the gastric wall was a small perforation the size of a quill surrounded by moderately firm adhesions. On the mucous aspect of the stomach there was a very superficial erosion about the perforated area.

The 3rd of this group was one of perinephric abscess also opening into the cardiac end.

(5) Perinephric and retro-peritoneal abscess perforating into the stomach. Reported by Dr. Nicholls in the Montreal Medical Journal, February, 1898.

Case 49/97, female, æt. 30. Dr. James Bell.

History of pain in the lt. lumbar region fourteen months before admission. For the last month nausea with fever and sweating. No history of renal colic or hæmaturia. On admission, large fluctuating tumour on the lt. side of the abdomen most prominent at the epigastrium. Aspiration followed by resection of the ribs did not lead to complete drainage of the abscess. Sixteen days later vomiting of thick, brownish, foul-smelling material with reduction of the tumour.

At the autopsy the lt. kidney found double the normal size, necrotic and

* Not a few of the fullest notes on these cases have been made by Dr. A. G. Nicholls, Assistant Pathologist at the Roval Victoria Hospital. I here very gladly acknowledge my indebtedness to his careful observations.

greenish in its posterior portion with a calculus filling up the proximal end of the ureter. The kidney was converted into a mass of cysts, the dilated calices, filled with thick, greenish, creamy pus with numerous small calculi. No ulceration nor perforation of the descending colon, which formed the front wall of the abscess cavity. The stomach was about half full of clotted blood and pus. "The lower part of the cardia near the spleen showed a perforation from without about 10 cm. in diameter. The muscular coats are eroded and *the mucous membrane overhanging and movable.*" The mucous membrane inflamed. Extension of the abscess also retroperitoneally to below the left Poupart's ligament. Empyema also of the lower part of the left pleural cavity.

Duodenum.

From the duodenum there were three cases:—

(6) Cholecystico-duodenal fistula. *Case 16/01,* male, aet. 56, Dr. J. Stewart.

History of the first attack of jaundice two years previously. Admitted with symptoms of peritonitis accompanying an attack of jaundice. The gall-bladder was found as a contracted sac with greatly thickened walls containing thick muco-pus. This wall to the right had ulcerated through. There was an abscess cavity around the bladder with communication into the duodenum. The cystic duct was blocked by a stone. Five stones were found in the common duct; multiple abscesses in the liver. Examining the duodenum, a long fistulous tract, 1cm. in diameter, opened 4.5 cm. below the pyloric ring. This communicated with the gall-bladder and with the abscess cavity to the right of the same. "*This opening was clearly eroded from without for the mucosa was less involved than the outer layers of the duodenal wall.*" * Note that, therefore, the condition was not one of simple cholecystico-duodenal fistula.

(7) Suppurative cholecystitis with fistulous communication between the contracted gall-bladder and the duodenum.

Case 20/00, male, middle aged. Died immediately after admission; no notes.

Case of gout with right inguinal hernia. 3 cm. from the pyloric ring a free communicating fistula between the duodenum and a small, thick-walled cavity which was the contracted gall-bladder. This contained a small quantity of turbid greyish, yellow material. Cystic and common ducts relatively wide and free from gall stones. Some chronic localized peritonitis.

(8) Retro-peritoneal abscess secondary to appendicitis and perforating into the third part of the duodeum.

Case 37/96, male, æt. 45. Dr. James Bell.

Case of perforative appendicitis with pylephlebitis of the mesenteric veins. Tracing the mesenteric vessls from without inwards, they opened into an extensive sloughy abscess cavity situated in the root of the mesentery, the branches of which corresponded with the mesenteric veins. This abscess ex-

* Here and elsewhere the use of quotation marks indicates that the sentence is transcribed verbatim from the Post Mortem Records.

tended upwards to the duodenum and beneath the head of the pancreas and "in the third part of the former was a fine perforation connecting with the abscess cavity." In this case the B. aërogenes capsulatus was present.

Small Intestine.

There were two cases of exogenous ulcerative perforation of the small intestine.

(9) Multiple perforations in the small intestine and the cæcum secondary to pelvic abscess.

Case 64/98, female, æt. 18. Dr. Wm. Gardner.

This case was one of suppurating ovarian cyst of the right ovary with removal. Post-operative development of localized pelvic abscess with fæcal fistula. At the autopsy the pelvic abscess found to be well localized with development of general peritonitis. "The first perforation was about 4½ ins. below the beginning of the jejunum; here was an opening 8x4 cm., roughly oval in shape, *with two or three strands of mucosa crossing it. The serosa was more eaten away relatively than the mucosa showing that the perforation had been from without inwards.*" The intestine here showed some evidences of active inflammation.

The second opening in the ileum, 8 ft. from its origin (? termination). At this point about half of the bowel had sloughed away. This had been noted to form the apical portion of the abscess cavity. One foot lower down a third perforation about 1 cm. across. The fourth perforation about one foot lower down, with mucosa freely exposed in the abscess cavity. The fifth perforation about twelve inches above the ileo-cæcal valve was about 1 cm. in diameter. Two inches above the valve the sixth perforation, about 10 cm. long. The lower part of the ileum intensely injected. At the junction between the cæcum and ascending colon was a small perforation appearing to communicate directly with the lowest perforation in the ileum.

The history in this case points, I think, clearly, to the ulcerations having been, in the main, exogenous, and we have the indication, in connection with more than one of the ulcers, that the serous coat was more involved than was the mucous.

(10) *Case 44/99*, æt. 40, female. Dr. Wm. Gardner.

History of pelvic inflammation dating back for eighteen months. Operation in July when double ovarian abscess was found. The right ovary was the size of a large orange and filled with fœtid pus, the left ovary was the size of a small orange. Both extirpated with the appendages. At the autopsy all structures found firmly matted together. Thick, greenish pus also present between some of the coils of the intestines. 8 ins. above the ileo-cæcal valve the ileum was found perforated and a fæcal fistula present. To the left side of the uterus was a large abscess with fæcal contents showing a large opening in the anterior wall of the sigmoid, which, more to the right, was adherent to the fundus of the uterus. A large part of the wall of the sigmoid was absent, the rest being shreddy and necrotic. The remains of the broad ligament could be recognized in the abscess cavity. The abscess had further perforated into the vagina, there being a discol-

oured pinpoint opening in front of the os and to the left of the median line which gave pus on pressure.

The exogenous perforation in the ileum appeared to be the later process. The indications at the autopsy were that, after removal of the appendages, the suppurative process had started in the neighbourhood of the adhesions between the stump of the left tube and the sigmoid; that the abscess had been, at first, well localized by the matting of the intestines, but later on a diffuse form of generalized suppurative peritonitis had developed with the formation of pockets of pus between the loops of the intestine.

Cæcum.

Here, again, there were two cases of exogenous ulceration and perforation.

(11) *Case 51/03*, male, æt. 63. Dr. James Bell.

Progressive purulent peritonitis secondary to sarcoma of the rectum with obstruction. Peritoneal pain had only been noted one month before death. Evidences of acute peritonitis upon admission. Condition so serious that no operation was performed. Death eight days after admission. At the autopsy, the peritoneal membrane was everywhere congested and covered with a fibro-purulent deposit. At the inner and anterior surface of the cæcum about one and a half inches above the root of the appendix, upon separating the adhesions, about 1 drachm of thick, greenish pus was liberated and fluid fæces exuded through an opening in the wall of the cæcum. All around, the coils of the ileum were adherent as was also the great omentum. This perforation was well removed from the region of the malignant growth. "*The perforation apparently had been produced from without since the mucosa was less affected than the serosa.* Elsewhere in the bowel there was no ulceration present to account for the perforation save two patches of very slight erosion of the mucosa." At the junction of the sigmoid flexure and the rectum was a large mass of new growth occupying two-thirds of the true pelvis. This was found to be of the nature of a spindle celled sarcoma.

(12) *Case 53/96*, male, æt. 59. Dr. James Bell.

Perforation secondary to suppurative perityphlitis.

History of pain in the right side in February, '96, with the formation of an abscess from which, two weeks later, about one pint of pus was removed. Increasing weakness during the next month with chills and fever. A second incision made with discharge of pus following which there was a sinus. Admission in July, '96, when, on attempting to open the sinus there was so much hæmorrhage that the operation was not completed. Death a week later.

At the autopsy there were no evidences of perforation of the appendix which, however, had thickened walls and showed injection of the mucosa. Some chronic thickening of the walls of the cæcum with adhesions to the borders of the operation wound. In the cæcum a small point of perforation was discovered with indolent edges, 1 cm. in diameter.

The rest of the mucous membrane of the cæcum showed patches of congestion, but no signs of ulceration. Abscesses in the liver.

It may be argued that the fæcal fistula here was of operative origin. The history, however, conforms with that of other cases of slowly developing suppurative processes in the peritoneal cavity leading eventually to perforation from without.

Ascending Colon.

In connection with this region of the bowel I have encountered three cases in addition to No. 1 already given.

(13) Retro-peritoneal abscess secondary to appendicitis.

Case 69/95, male, æt. 21. Dr. James Bell.

Sudden severe abdominal pain on Sept. 25th. Admission six days later. Operation the same day. Gangrene and perforation of the appendix. Following upon the operation there developed gradually, during the last days of life, a condition of pyopneumothorax and pyopneumopericardium with, on October 13th, the day of death, great tympany and congestion of the abdominal wall.

At the autopsy there was found a retroperitoneal abscess extending from the region of the appendix along the outer side of the right kidney and so behind the liver where there was a small sub-diaphragmatic abscess. The muscle here was necrosed and infiltrated. Extension of the process to the right pleura and pericardium. "The necrosed, perforated area of the ascending colon opened into a cavity having the lower half of the right kidney for right wall and the duodenum for the inner wall. The necrosed area was oblong and transverse, 3 cm. across, *with the necrosis especially affecting the outer wall and a second small perforation through the mucosa.*" The rest of the colon did not call for remark. There had also been a post-operative sloughing of the stump of the appendix.

This case has already been reported by Dr. Nicholls as an example of pneumothorax due to the B. aërogenes capsulatus. Here, again, we have a characteristic note that the ulceration was more extensive on the serous than on the mucous surface.

(14) Retro-peritoneal abscess secondary to appendicitis.

Case 94/98, female, æt. 45. Dr. James Bell.

In this case there was a history of recurrent appendicitis dating back twenty years and of vaginal hysterectomy eleven months previously. Symptoms of appendicitis followed by those of acute peritonitis developed and, upon operation, the appendix could not be found, its locality being occupied by an abscess cavity. On bringing the colon to the wound, fæces were found escaping from an opening on the outer and anterior surface of the hepatic flexure. Death thirteen days after operation.

At the autopsy there was a large mass of adhesions involving the last eighteen inches of the ileum, the mesentery, cæcum, great omentum and ascending colon up to the hepatic flexure. No signs of the appendix could be found. About six inches above the valve was a perforation communicating with the exterior operation wound along the outer border of the right rectus. From this region upwards to the lower surface of the liver there was a large amount

of free pus and fæces. The tissues in front of the right kidney were thickened and indurated. At the operation very small collections of pus were found between the coils of the intestines. The rest of the bowel practically normal.

Here the condition of the ascending colon and its surrounding tissue indicated long standing inflammatory disturbances, following a condition of periphylitis spreading both beneath the peritoneum and in the peritoneal cavity along the course of the ascending colon.

(15) Right pyonephrosis communicating by two openings with the ascending colon.

Case 70/02, male, æt. 28. Dr. James Bell.

This was a case of neglected gonorrhœa with a stricture, epididymitis, prostatitis, chronic ureteritis and pyonephrosis. Dr. Bell performed a nephrotomy and removed much thick creamy pus from the right kidney; this was followed by abdominal tenderness with vomiting. Death the next day.

At the autopsy the right kidney was found enlarged and pale, the seat of two abscess cavities connecting with the exterior through the operation wound. In the lower portion of the organ was a firm necrotic mass, well defined, about 3 c.m. in diameter and much broken down at its periphery. This portion was adherent to the posterior wall of the ascending colon in which there were two small fistulous openings.

Sigmoid.

(16) Extension of localized necrotic inflammation from the uterus after operation, formation of fistula between the uterine cavity and the sigmoid.

Autopsy 12/99, female. Age not given. Dr. W. Gardner.

This was a case of endometritis and cervicitis with prolapse of the uterus. Uterus curetted and abdominal incision performed, when there was found an active peritonitis localized around the uterus with evidences of chronic peritonitis and extensive adhesions. The left tube and ovary were removed, active peritonitis continuing after the operation.

At the autopsy the sigmoid was found adherent to the left upper portion of the uterus while at the site of the operation, was a mass of inflammatory exudate with sinuses throughout communicating on the one side with the sigmoid on the other with the body of the uterus. Two fistulous openings were found into the sigmoid "*the openings being clearly eroded from without, the serosa being more involved than the mucosa.*" Upon examination of the uterus there was found at the region of the left cornu an area of discoloured necrotic tissue extending though the whole thickness of the wall. The sinuses passed from this to the sigmoid.

In case No. 10 it is to be recalled that there was also perforation of the sigmoid.

Rectum.

(17) Ovario-rectal fistula secondary to oophoritis and purulent perioophoritis with pelvic abscess.

Case 39/95, young adult female. Dr. W. Gardner.

Young married woman giving the history of arrest of menstruation a few months after marriage with the development of a pelvic tumour, night sweats and slight fever. In March, '95, laparotomy performed and a parovarian cyst discovered together with a localized abscess on the right side of the uterus containing most fetid gas and grumous fluid with a fæcal odour. Recovery complicated by the passage of gas and fæces through the drainage tube. Otherwise good health until the middle of April when symptoms of acute meningitis developed.

At the autopsy, 7 cm. from the anus, on the anterior wall of the rectum, was a sinus 3 mm. across, and 7 cm. higher was a second and larger orifice, 6 mm. across in the anterior wall of the gut. These two communicated by a fistulous tract in the wall of the bowel and from the upper and larger orifice a passage led into the left ovary. The fistula communicated also with the abdominal wound. The region of the fistula in the neighbourhood of left ovary formed a loose cavity with injected walls surrounded by dense inflammatory new growth. The right Fallopian tube contained pus. The right ovary was surrounded by dense adhesions.

In this case no bacteriological report was given. The history rather suggests gonorrhœal salpingitis and oorphoritis with the formation of pelvic abscess and perforation into the rectum. The parovarian cyst was a further complication.

(18) Recto-vaginal fistula formed by extensive eroding cancer of the body of the uterus.

Case 71/02 aet. 32, Dr. W. F. Hamilton.

History of good health until six months previously when severe abdominal pain came on, with diarrhœa and progressive loss of flesh and strength. History of alcoholism. On admission the abdomen very hard, tense and tender, especially in the suprapubic region. Sickening odour about patient. Foul discharge from vagina with fæces in the same. Hard nodular masses felt upon vaginal examination, with recto-vaginal fistula.

At the autopsy the condition found to be one of eroding cancer of the uterus with extensive destruction of the anterior wall of the rectum, 4 cm. in length by 2 cm. in breadth opening freely into the cavity at the upper end of the vagina. A large cavity represented the body of the uterus. The process had clearly begun in the uterus and extending into the wall of the rectum had led to the development of this large fistula.

While in this case the process is clearly cancerous in origin, the extensive erosion is clearly of an ulcerative nature, so the case may here be included.

Reviewing these cases, it will be seen that they are not all of the same order. We can, in fact, distinguish two broad groups: (1) the fistulous cases, and (2) the cases of either purulent peritonitis or of retro-peritoneal abscess.

In the one group of cases, that is, we have evidences of inflammation

developed in one viscus leading to ulceration of the same and, by the extension of the inflammation through to the serous surface, an adhesion is produced between the viscus and some portion of the intestinal tract. Following upon such adhesion, the ulceration or abscess formation extends through from the viscus into the wall of the intestine, so leading to perforation and the formation of a direct connection between the viscus and the lumen of the gut. In the other group of cases, this immediate adhesion is wanting. The extension of inflammation from any point leads here to a purulent peritonitis of localized type so that an abscess is formed. And now, secondary to this abscess formation, the wall of some portion of gut, forming one of the boundaries of the abscess cavity, undergoes ulceration and perforation.

In the first group there is a less acute development and the formation of the fistula is not so obviously associated with the fatal event. Examples of this first form are to be seen in cases 3, 7, 15 and 18.

The second form is the more characteristic and, on the whole, the more serious. The larger size of the cavity communicating with the bowel, the danger of the more extensive passage of fæces to replace the discharged pus, the more extensive involvement also of the intestinal wall, all join to render these cases very fatal.

Examples of this form we have in cases 1, 4, 5, 9, 10, 11, 12, 13, 14.

As a group, these cases have an anatomical character of their own. There is a marked tendency for the serous coat to be more seriously affected than the mucous. (*Vide* cases 2, 5, 6, 9, 11 and 13), while in a certain number of these cases it is noted either that the mucosa is movable and raised from the underlying layers as though there had been a preliminary period of abscess formation in the submucosa, (Case 5), in other cases, a portion of the mucosa is found to bridge over the ulcer (Cases 2 and 9), or, as in the first case here described, to exhibit multiple perforations. All these are indications of a process of perforation occurring from without.

Reference must be made here to what may be termed the intermediate group of cases. In Case 6, for example, there was an imperfect fistulous communication between the gall-bladder and the duodenum and, at the same time, communication between this and the abscess cavity situated around the gall-bladder. So also in case 16, there were indications of fistulous passages leading from the sigmoid through the left cornu of the uterus into the uterine cavity. These were situated in a mass of inflammatory exudate of a somewhat purulent nature and we have the note that the serosa of the sigmoid was more involved than the mucosa, a note incompatible with the existence of simple fistula. We have, that is, to recognize that evidently the fistulous and

the suppurative groups are not clearly defined the one from the other, that, in short, transitional forms exist. I leave it an open question whether Case 17, which is described as an ovario-rectal fistula, belongs to this group or should come under either of the others. The description of the condition found at operation point to a local periovarian abscess discharging per rectum.

Lastly, Case No. 2 with the new growths, apparently tubercular, situated upon the serous coat, breaking down at their centres and perforating and leading to multiple perforations of the gut, forms a section by itself.

As I have already remarked, looking over this record of seven hundred post mortems, I have been not a little surprised to find the relative frequency of this form of ulcer. If our experience at the Royal Victoria Hospital corresponds in any way with the experience in other hospitals, then exogenous perforative ulceration of the intestine is by no means the rare condition which it is generally held to be. In short, grouping together all these cases in which there is definite evidence of the extension of a localized abscess outside the gut without immediate adhesion to a viscus, we have here no less than 13 cases in which the suppurative process has led to erosion and perforation of the bowel wall, or a percentage of 1.85.

Studying this group of cases further, it will, I think, be recognized that in them we have to deal with not the acutest form of suppuration. That acutest form leads to a generalized peritonitis without the formation of adhesions. Here we have constant evidence that the suppurative process is localized by surrounding adhesions; in fact, it would seem to be this very localization which accounts for the perforation. As the pus accumulates within the containing cavity there is increasing pressure brought to bear upon its walls and, where those walls are weakest, where, that is, they are formed of a hollow thin-walled viscus, any pressure must lead to a certain amount of anæmia and malnutrition and at such a point of anæmia and malnutrition, there is developed a favourable nidus for the invasion of infecting agents, for ulceration and perforation.

Although here we have so many instances in which the serous coat has become infected and ulceration has taken place, some, at least, of the cases are examples of a somewhat more acute inflammatory process taking place where the serosa is wanting, either in regions such as the posterior wall of the duodenum and the posterior wall of the ascending colon and the rectum where the intestine is retro-peritoneal and not wholly surrounded by serosa, or, on the other hand, where there has, in all probability, been operative removal of a portion of the

same in the process of breaking down adhesions. It is possible that in more than one of the cases here described, the ulceration has had its origin through infection of the bowel wall thus stripped of its serous coat.

It is well, I think, to bring the relative frequency of this form of ulceration to the attention of surgeons and those interested in abdominal conditions, not because this condition forms a hopeful one for operative interference; on the contrary, when inflammation has gone so far, judging from our experience in the post mortem room, the possibility of affording aid is very slight; but because it is right that, for diagnostic purposes, this end-result of localized suppuration in the abdominal cavity should be more fully realized, and lastly, because where fæcal fistula is established after any operative interference in the abdomen, it should be remembered that such fæcal fistula by no means indicates of necessity either that the sutures in the gut wall have given way or that the bowel has become ulcerated from within or gangrenous. It may indicate, as here shown, that accumulations of pus have led to perforation from without.

SOLITARY ULCER OF THE BLADDER, NON-TRAUMATIC AND NON-TUBERCULAR IN ORIGIN.

BY

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On the 14th of October, 1902, a young man 21 years of age, was transferred from the Medical side to my ward in the Montreal General Hospital, complaining of pain in the end of the penis and frequency of micturition.

He had diphtheria when six years of age, followed by temporary paralysis of the vocal cords. He says that before the onset of the present illness he frequently suffered from severe pain in the lower abdominal region in the middle line. The pain came on about an hour after breakfast and disappeared as soon as the bowels moved. This was a daily occurrence, but he thought little of it and did not consult a physician. His habits are good, does not use alcohol in any form, smokes but little, and has no venereal history.

The present illness came on quite suddenly about the 8th of August, 1902. He was in the best of health at the time. Three symptoms appeared almost simultaneously; these were:—

I. Pain at the end of the penis, about the end of the corona, on the

* Read before the Congress of American Physicians and Surgeons, Washington, 12th May, 1903.

dorsum, just before micturition and generally very severe, necessitating the administration of morphia.

II. Frequency of micturition. He passed urine every 20 minutes or half hour; when lying on his back the intervals were longer.

III. Loss of expulsive power; the urine just escaped and dropped down at his feet.

The act of micturition was not accompanied by pain. He noticed nothing unusual about the urine and did not observe any blood. He could give no reason for the occurrence of these symptoms. He had had no accident; had not suffered from violence in any form; had not been exposed to the weather more than any lad who drove an express delivery wagon, and as before remarked had no venereal history.

On the 22nd of August, eight days after the onset of the symptoms, he consulted his family physician, a careful, accomplished and painstaking man, who passed a steel sound. This did not cause much pain, and a few drops of blood followed.

The family history was negative; father, mother, three brothers and two sisters were alive and well; one brother died of diphtheria in infancy. He was a fairly well nourished young man of medium height, and weighed 123 pounds, 12 pounds less than when he first became ill. He complained almost constantly of severe pain at the end of the penis. If morphia were withheld his cries were so loud and frequent that all the other patients were disturbed. The urine was turbid and contained large quantities of thick tenacious mucopurulent matter. On standing this material became very thick and viscid. The reaction was alkaline; the specific gravity could not be determined because of the thick muco-pus. There were a few phosphates and triple phosphates and an abunbdance of pus cells, but no casts. For a fortnight I kept a couple of enthusiastic students at work examining the bacterial flora, their results always being checked by the hospital pathologist, Dr. McCrae. Streptococci were always present in numbers, as well as small and large diplococci. The tubercle bacillus was never found.

The patient was losing weight. His temperature varied betwen 97 and 102 F. Under the influence of general anaesthesia I passed searchers into the bladder with a negative result. The examination was followed by a slight hæmorrhage. Prolonged lavage failed to secure sufficient clearness of bladder contents to permit of the use of the cystoscope.

The physicians reported that there was no evidence of any intrathoracic disturbance. Outside the bladder nothing could be found to account for the temperature and emaciation.

I regarded the case as probably one of tuberculous cystitis and decided to make a supra-pubic incision, with the double object of exploration for diagnostic purposes, and if tuberculous ulceration were found, the establishment of permanent drainage for the relief of the pain, tenesmus and septic absorption. Bladder lavage, using solutions of boracic acid, permanganate of potash, carbolic acid, silver nitrate and Thiersch's solution, had failed to afford any relief, and morphia was required to secure rest and sleep.

On the 25th of November with the patient in the Trendelenberg position, I made the usual incision in the median line. I had only separated the muscles when the boracic solution, which I had placed, as I supposed, in the bladder, began to flow out. The edges of the incision were retracted and the solution removed by swabs. By means of a strong reflected light I then found I had opened the pro-peritoneal space or Cavum Retzii. The bladder, small and contracted to about the size of a hen's egg, lay at the bottom of the space with a large opening in its anterior wall the size of a twenty-five cent piece. The edges of the opening were thick, rounded and somewhat irregular in outline; the mucous membrane was everted. I could bring the internal orifice of the urethra, the opening of the ureter and every part of the inner surface of the bladder into view, but no ulceration or other change could be detected. The space in front of the bladder measured five inches laterally and four inches antero-posteriorly. After careful cleansing a large-sized rubber tube was inserted through the supra-pubic wound down to the opening in the badder wall.

The space lessened considerably in size for a time, but the temperature did not improve and emaciation continued.

On the 20th of January, 1903, I made a perineal puncture and through this inserted a catheter into the bladder with the view of securing dependent drainage. This did not prove to be altogether satisfactory for while the greater part of the urine escaped by the perineum, there was also some overflow through the suprapubic wound and the Cavum Retzii was kept bathed with it.

About the middle of February the patient complained of pain in the left loin and on the 13th of March I opened a peri-renal abscess. The kidney was palpable, not much enlarged, firmly imbedded in adhesions and the patient's condition was so bad that I did not deem it wise to explore further.

Unfortunately for the boy and for my argument, he died on the 24th of April. The autopsy showed acute miliary tuberculosis of both lungs; caseous tuberculosis of the bronchial glands; miliary tuberculosis of the left adrenal, spleen, kidneys, left ureter and bladder.

My second case was a healthy school boy, 12 years of age, with a good family history. He noticed blood in his urine on the 20th of December, 1902. The haematuria persisted and one week later he began to suffer pain at the end of the penis before and after micturition. The pain would pass off in about half an hour. At this time there was no marked frequency in urination. On the 17th of January, 1903, he consulted his family physician for the pain and it was found necessary to administer morphia.

I saw the boy in consultation on the 23rd of January and removed him to the Montreal General Hospital. The urine was turbid, acid, and contained blood, pus and vesical epithelium. Two moderate sized hyaline casts were found and there were also found diplococci and staphylococci.

On the following day, under anaesthesia, I introduced the cystoscope and found on the anterior wall, about two inches behind the urethral orifice, a patch of ulceration as large as a ten-cent piece. A part of the circumference was abrupt, well defined, the remainder of the circumference gradually passing into healthy tissue. The base was dark but not actually bleeding. Clear urine issued from the ureters. The bladder was then injected with a 1% solution of silver nitrate, and after an interval of two minutes this was withdrawn and the bladder injected with normal salt solution. This treatment of the bladder was repeated daily for 17 days when all symptoms had subsided. During his stay in hospital the temperature varied from 97 to 99 F., and the pulse from 72 to 96. He has remained perfectly well up to the present time.

In 1876 Bartlett reported the death of a man 53 years of age, from peritotnitis secondary to intraperitoneal rupture of the bladder. At the autopsy there was found exactly in the middle line, on its posterior aspect, one inch from its apex and corresponding to the perforation, an ulcer which bore an exact resemblance to a chronic gastric ulcer; distinct loss of substance, as if a piece had been punched out, funnel-shaped smooth edges; at one side was some puckering.

In 1885 Reeves[2] reported the death of a young woman from peritonitis secondary to perforation of the bladder. The perforation was through the base of a single ulcer. The perforation would seem to have been temporarily closed by omentum which separated during the removal of a urethral polypus.

In the same year Oliver[3] discussed the occurrence of single simple ulcer of the urinary bladder similar to that occurring in the stomach and duodenum, but does not report cases.

In 1892 Wyeth[4] reported a case of intraperitoneal perforation in the

bladder of a man aet. 43. The perforation occurred though the base of an ulcer about the size of a half dollar. The adjacent part of the bladder wall was dark colored. This patient passed a large amount of bloody urine four days before his death.

In 1896 Fenwick[5] reported six cases of "simple solitary ulcer of the urinary bladder" in a clinical lecture published in the *British Medical Journal* of May 9th, 1896. He has observed this ulcer in both sexes. The majority of his patients were young men about 20 years of age. He has observed contact ulcers on the opposite wall, especially in the female organ.

In 1892 Johnston[6] reported a case of death from peritonitis following a rupture of the bladder through the base of an apparently simple ulcer three inches in diameter.

In 1900 Chaufford[7] reported an intraperitoneal rupture, elliptical in shape and the size of a two franc piece, occurring at the upper posterior part of the bladder and noted its resemblance to a gastric ulcer.

Just a year ago Christopherson[8] reported a most interesting case of a man aet. 49 with symptoms of what he thought to be probably a tuberculous ulcer. These symptoms began about two years before, during an attack of rheumatism. They were, frequency of micturition, pain during and after urination, supra-pubic and at the end of the penis. He had suffered from lead colic. No tubercle could be found in any part of the urogenital tract or elsewhere, nor was the tubercle bacillus to be found in the urine; had only passed blood sufficient to color the urine on one occasion. Through a supra-pubic incision the cavity of the bladder was found to be small and the walls hypertrophied but otherwise healthy except for a small ragged irregular ulcer with granular surface and thin edges, and about 1.9 cm. in diameter, between the two ureters and on the posterior part of the trigone. When it was touched over with swabs of wool wet with carbolic acid, 1-20, the surface bled readily. There were no signs of caseation or tubercles anywhere and the ulcer looked more like an anal ulcer than anything else. The ulcer was not found indurated or perforating and quite unlike a gastric ulcer. There were no signs of malignant disease. The bladder was drained suprapubically and washed out with a solution of borax and iodine for twenty-eight days. In about two months he gained two stones in weight, and left the hospital apparently cured.

On January 7th of the present year, Daly and Harrison,[9] reported a case of spontaneous rupture of the bladder occurring in an Irish harvester 36 years of age. The man was seized with pain while carrying a pail of water with which to wash himself. At the operation an intra-

peritoneal rent was discovered of sufficient size to admit the tip of the index finger. This was sutured with two layers of Lembert sutures, the mucous membrane not being included. The rent was situated midway between the fundus of the bladder and the bottom of Douglas' pouch and was vertical and central. Notwithstanding some deplorable complications the man made a good recovery.

Rawson[10] reports the death of a woman aet. 35, taken suddenly ill and dying in 36 hours. At the autopsy a small ulcerated opening was found at the summit of the bladder. The mucous membrane of the bladder, for the breadth of half an inch around the opening was highly injected with blood and was of a much darker color than the rest of the mucous lining. Purulent matter was adherent about the edges of the ulcer. The woman had been confined with a living child about a month previously by a midwife, and from what could be made out she had had a favourable labour and attended to her usual work after the first week. She had never referred to any pain in the region of the bladder, but had been heard to complain, both before and after labour, of an inability to empty her bladder completely.

Thurston[12] reports a case of chronic perforating ulcer of the bladder occurring in a married woman 52 years of age. The symptoms had been present for over four years before the perforation of the fundus of the bladder occurred. The hole had been closed by adherent omentum.

We are all familiar with tubercular ulceration of the bladder and with the breaking down of tissue secondary to neoplasms, and Proksch[11] has told us something of syphilitic ulceration; it occurs rarely in cases of long-standing prostatic cystitis. Does there occur an ulceration of the bladder wall independently of trauma (including pressure), tubercle, syphilis and new growth? I am not prepared to answer that question in a monosyllable. The evidence that I have collected favours, in my opinion, an answer in the affirmative.

An antemortem diagnosis, before the advent of the cystoscope, was impossible, and the true condition was only determined after the occurrence of perforation and then generally in the autopsy room.

I have selected these 17 cases from a larger number in which the reports were sometimes too incomplete to permit of classification. In some instances perforation has occurred after a fall, or the receipt of some form of violence. It yet remains to be determined just how much force is needed to rupture a full or distended bladder, not weakened at any one point by ulceration or sacculation. In this list all such doubtful cases are excluded.

I think we must look to one or more of three conditions for the cause of single ulcer of the bladder—infection, thrombosis and syphilis. It

has been thought by some that probably most perforating ulcers were due to a breaking down gumma in the bladder wall. In very few of the case reports is the suspicion of syphilis raised and the autopsy findings have not disclosed a condition that has suggested the presence of breaking down gumma. In both of my cases cocci of various forms were present. The first may have been tubercular in nature from the beginning but at the time of first operation there was no appearance of tubercles. But it would appear that there must be some other etiological factor present in addition to the infection. Simple infection of a normal bladder does not as a rule end in perforation. Mention is frequently made of the similarity between perforating ulcer of the bladder and that of the stomach and duodenum, and it is quite possible that in each case a similar pathology obtains.

The condition is referred to by Rokitansky, under the name of chronic perforating ulcer of the bladder. Lawson Tait refers to four cases in two of which Sir J. T. Simpson established a vesico-vaginal fistula to obtain physiological rest and relief to the patient from pain. The evidence of the exact nature of the bladder lesion in these cases is not made clear in the report.

The symptoms in the majority of cases were, pain, frequency of micturition and the presence of small quantities of blood in the urine.

The pain is very severe and often referred to some point in the penis in the male and about the neck of the bladder in the female. The intensity of the suffering is often very great. In both of my cases the penis was held in the hand and guarded from dreaded violence. These boys would cry out with the pain of the penis. Fenwick states that some of his patients would cut the pocket out of their trousers that they might carry the penis and so better protect it. The suffering interferes with nutrition and requires morphia for its relief. In some cases there seems to have been very little pain indeed.

The frequency in micturition varies in different cases. My first case urinated very frequently. I think that I have found a definite relation to obtain between the situation of the ulcer and the pain and frequency of micturition. If the ulcer is about the trigone and ureteral orifices, or in fact if it is in the neighbourhood of the neck of the bladder, the pain and frequency are great. On the other hand, in those cases where the ulcer has been situated about the fundus there has often been a remarkable absence of symptoms until the occurrence of haemorrhage of perforation. The symptomatology in this respect bears a close resemblance to that of gastric ulcer.

The diagnosis can be made with a considerable degree of certainty when the onset is sudden and the symptoms mentioned are well defined.

The cystoscope is of the greatest value here, and should always be used if possible.

The prognosis in cases seen early is good. They yield readily to treatment and in some instances have probably healed without any treatment at all.

The local application of solutions of nitrate of silver seems to have been most generally useful. In my second case I used a solution of 1 in 10,000. It caused some smarting at first which passed away soon after the solution was replaced by a saline solution. I used the injection daily and the pain became progressively less as the patient improved. Sir James Simpson is reported to have treated two cases successfully by the establishment of a vesico-vaginal fistula. Christopherson made a supra-pubic incision, touched the ulcer over with swabs of wool wet with carbolic acid, 1-20. The bladder was drained suprapubically and washed out with a soluion of borax and iodine for twenty-eight days. In two months he gained two stones in weight. He left the hospital apparently cured.

Boracic acid, salol, urotropin and helmitol are indicated.

It is unfortunate that ulcer situated on the fundus is so often without striking symptoms. A haemorrhage may give the first intimation of its presence. If perforation occurs into the peritoneal cavity it may be closed. I believe that as good results may be obtained here, by early diagnosis and prompt interference, as in the case of perforating ulcer in the stomach; perchance even better results, because there may be a less virulent infection.

In conclusion I would submit that in view of the clinical evidence now accumulated for the existence of a single non-tuberculous ulcer of the urinary bladder, and the post mortem reports of six perforations of the bladder through the bases of single non-tuberculous ulcers, the condition should be more generally recognized and should find a place in the text-books.

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ENTEROLITH.

BY

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Mrs. M., aged about 60 years, a strong, healthy married woman, the mother of several children, was taken ill on February 10th, 1902. I saw her the same evening, and she complained of having pain in the abdomen the previous day, for which she had taken a purgative, without result.

About ten or twelve years ago I had attended her for an attack of what I considered was biliary colic, her first and only attack, from which she promptly recovered. There was no jaundice. Careful watch was kept for some weeks, but no stone was found. From time to time since then she has complained of symptoms of atonic dyspepsia, but for the past five years she has been in good health, until the present illness.

At my examination there were no objective signs; on the following day there was slight abdominal pain and rectal tenesmus, but no tenderness or vomiting. Purgatives and rectal injections were without result.

On exploring the rectum it was found to be empty, but on trying to pass a high rectal tube, it would not enter the sigmoid flexure. On bimanual examination I found a soft moveable mass which I could not dislodge. On the fourth day of the illness, the temperature was 101°, the pulse, 120; and marked tenderness in the left iliac fossa, with some general distension, but no vomiting. The patient's general condition was not satisfactory, and the necessity of an exploratory incision was considered; but I made a further effort to dislodge the mass late at night, and the following morning the large specimen shown and here illustrated was passed, and later the smaller one. There was immediate relief, but temperature and iliac tenderness remained, and excreta was blood-stained for some days.

A microscopical examination of the large specimen showed cholesterin crystals and bile pigment. The large specimen weighs 18.14 grammes, and measures 4 c.m. in its long, and 3½ in its short diameters. In the centre of the larger specimen can be seen what looks like a biliary calculus, the smaller one is undoubtedly a calculus showing faucetted surfaces.

Medical literature abounds in reference to the passage of biliary calculi and much discussion has taken place regarding the methods by which large calculi pass from the gall bladder to the intestines.

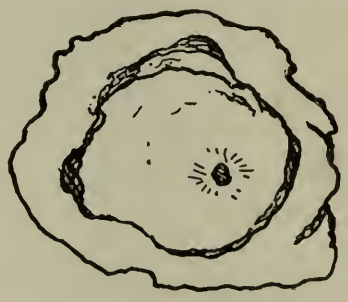
It would seem that the common duct can transmit a very large stone by gradual dilatation, and again the stone may pass from the gall-bladder to the duodenum by ulceration, both without causing much disturbance to the individual. Intestinal obstruction by gallstones or enteroliths is more common in women and is usually seen between the ages of 50 and 70 years. The common site is in the small bowel just above the ilio-caecal valve. In the case under discussion I considered the obstruction was at the sigmoid flexure which is the narrowest part of the colon.

An interesting point is, whether I dislodged the obstruction by my finger, or if the rising pulse and temperature was the result of ulceration breaking down the fold of intestine, thus making a passage. The blood-stained mucous and iliac tenderness would suggest the latter; possibly both played a part. The absence of vomiting prevented me from performing an exploratory incision.

Gibson (1) states that in 1,000 cases of acute obstruction, 40 were due to gallstones, and 16 to foreign bodies. A few of the larger calculi causing obstruction are reported by William Ord (2), Dryden Stead (3), Robert Wilkinson (4), Chas. Mills (5), Pye-Smith (6), Erdmann (7), and an enterolith, in the centre of which, was a plumstone, by Hurry Fenwick (8).

The International Textbook of Surgery refers to a series of cases collected by Lothrop in which 133 were due to gallstones, 16 to enteroliths, and of these 16, 10 had a gallstone as a nucleus.

I am indebted to Dr. F. G. Finley for his advice in consultation, and to Dr. Bruce for the microscopical examination, but a thorough chemical examination would have destroyed the specimen.



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MULTILOCULAR CYST OF LOWER JAW.

BY

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We have to deal with a patient now aged thirteen who came to us for treatment complaining of an enlargement of the right inferior maxilla. The history of the case is as follows:—As a child nothing was noticeable but, at the age of two, the parents remarked a small lump projecting externally upon the right lower jaw about one inch from the symphysis From this time forward the lump has undergone a slow enlargement up to the present time, having occasionally associated with it a slight amount of pain. There was nothing abnormal noted with regard to the eruption of the temporary teeth, but with one exception the teeth above the tumour have not been shed; its removal however was followed by the eruption of a permanent tooth. The growth did not follow any injury to the part and there is no syphilitic history.

Examining the patient, there is seen to be an enlargement of the lower ramus on the right side, beginning in front about half an inch from the symphisis and extending backwards to about half way along the ascending ramus. The enlargement shows itself more particularly on the external surface of the jaw. While there is this outward projection, there is not much alteration in the outline of the upper or lower border of the jaw; we have to deal in the main with an irregular widening of the part. As regards the teeth over this tumour, there are two remaining temporary molars and a recent imperfectly grown permanent molar. The tumour itself is relatively firm, in fact distinctly hard and pressure upon it reveals no crackling nor evidence of fluid contents; in its neighbourhood are a couple of just palpable lymph glands. Beyond this the case presents nothing abnormal.

In considering the diagnosis of this case, several conditions must, I think, be ruled out. Simple hypertrophy of the jaw due to rheumatoid arthritis or to nervous conditions, may be at once eliminated. There is no history nor evidence of syphilis; chronic osteomyelitis is clearly not the cause of the growth, for if it were, it would, in the course of the eleven years during which the tumour has been present, surely have given rise to sinus formation. Epulis grows from the surface of the jaw; here, on the contrary, the growth can be felt as generally involving the middle portion of the ramus. Chondroma or osteoma would be more sharply localized. The skiagraph also comes to our aid by showing that we have not to deal with any completely consolidated mass, but one in which there are more rarified areas. Osteoid sarcoma might have

given a tumour possessing the hardness of the present one, and, in consequence of hæmorrhages and other conditions of breaking down, might have given a somewhat similar skiagraph, but had this condition been present, we may with confidence say that the patient would have been dead some years ago.

There remains for consideration those tumours of the jaw grouped together under the name of odontomes by Bland Sutton, but also known as dentigerous cysts by Eve, follicular cysts by Magitôt and adeno or cystic carcinomata by others.

Such cysts are usually grouped together under three main heads:—

(1) The true dentigerous or tooth-bearing cyst.

(2) The diminutive but allied form, the so-called dental cyst.

(3) The multilocular cyst, sometimes but erroneously termed multilocular dentigerous cyst.

The general opinion of the present day is that these three forms are, one and all, connected with and developed from the enamel organ or at least from the mass of epithelial cells from which the enamel covering of the tooth becomes eventually formed.

In order to understand this relationship, it will be well to briefly recall the mode of development of the tooth. At about the seventh week of fœtal life, a small portion of the epithelium covering the jaw dips down or is enfolded by the underlying fibrous tissue until there is produced a flask-shaped, downward-projecting mass of epithelial cells whose expanded lower end lies deep in the connective tissue stroma which eventually gives place to the bone proper forming the lower jaw. This little flask-shaped body is the so-called enamel organ. From being solid, it now becomes hollow by degeneration and breaking down of the central cells, thus forming a small, hollow, epithelial sac or cyst.

Somewhere at the lower extremity of this sac there projects into it a small bud of fibrous tissue which pushes the wall before it so that in a short period there is produced a small amount of of mesodermal tissue, capped by an invaginated epithelial sac. It is in immediate connection with this projection and its epithelium that the future tooth is formed.

But if, at this period, physiological development is arrested, then through the secretion of the cells lining the cyst, that cyst may enlarge and so there may be produced a relatively large hollow space lined by epithelium, often of a greatly altered appearance, and containing, projecting from its wall, either one or sometimes several poorly formed teeth.

This is the true dentigerous cyst, and the clinical history in such a a case is generally that in the region of an unerupted tooth there ap-

pears a lump in the jaw, painless and undergoing a slow increase in size, the expansion being most marked externally. After a while crackling or fluctuating is present. Such a cyst may or may not contain a supernumerary tooth or teeth but the presence of such is not absolutely necessary; the adjacent teeth often become loosened. Free incision with excision of the wall of such a cyst invariably produces a cure, for cysts of this order are never malignant.

The second form, the so-called dental cysts, are small sacs found attached to the fangs of the permanent teeth. These are rarely of such a size as to be of interst to the surgeon; they are accidentally discovered by dentists and by them are often considered to be abscesses with thickened fibrous walls. Turner has shown that these cysts have an epithelial lining and states that they develop from the remains of the enamel organ.

The third form, the so-called multilocular cysts, show yet other characters. Tumours of this nature are known also as adenosarcoma, cystic sarcoma of the jaw, and often simply as dentigerous cysts. Cases of this nature have been studied by Eve, and Heath, in England, Falkson, and Bryk, in Germany, and by Magitôt in France. It is to these authors that I am indebted for much of my knowledge of these peculiar tumours.

Such multilocular cysts may appear at any age. The earliest case recorded was at five months, the latest at fifty years. They may or may not be the result of delayed or incomplete dentition. They are of slow growth and, like the first form, cause expansion of the jaw more particularly on the outer aspect. Microscopically they consist of numerous small cysts which contain a yellow, colloid material verging upon red. The individual cysts resemble the structure of the enamel organ at its fullest period of development. There is a fibrous or bony wall lined by a layer of large columnar cells. In the colloid material filling the cavity, there are cells of a more stellate nature which would seem to be epithelial cells undergoing a colloid degeneration. The fibrous tissue surrounding these cysts often resembles in structure an epulis or simulates a myeloid sarcoma. This resemblance to more malignant forms of growth has led to numerous cases being recorded as myeloid sarcoma. Dr. Bell operated upon two cases in which that structure was well shown and Chadwick, in the *Annals of Surgery* for January, 1903, gives good figures and descriptions of the condition.

As to the exact mode of origin of these multilocular cysts, observers are, by no means agreed. Eve regards them as due to down-growth of the surface epithelium; Magitôt claims that their origin is the same as that of the unicellular cysts and that the locular appearance is produced

by a growth of the expanding cyst into the surrounding bone. It is further to be noted that teeth are rarely present in these multilocular forms.

The prognosis of this last form of tumour is in general good, though Heath$_2$ and Salter$_2$ and Hutchinson$_2$ have each recorded cases in which recurrence took place after fairly wide removal, and other cases in which metastasis occurred in the cervical lymph glands. Bland Sutton claims that when there are these metastases, it is a case of mistaken diagnosis, and that such malignant tumours are really in the first place endotheliomata.

The treatment is that recommended by Butcher of Dublin, namely, free incision and scraping away of the cystic portion with removal of the outer wall.

Returning now to the matter of the diagnosis of the case in point, I conclude that from the steady enlargement over a long period of years, the firmness of the walls, the number of teeth affected, the case must be considered one of this last form of multilocular cystic disease of the jaw, a conclusion which would seem to be definitely supported by the appearances shown in the skiagraph.

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FRACTURE OF BASE OF SKULL AND RUPTURE OF LUNG WITHOUT FRACTURE OF RIBS.

BY

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C. F., aged 35, fell from a scaffold about 35 feet high,—was brought to Montreal General Hospital and died on the second day after admission. The diagnosis was fracture of the base of the skull and the autopsy showed the following conditions:—

Body of a well nourished, heavily built young man; rigor mortis well marked, post mortem lividity in dependent parts. There was laceration of the right ear, with complete tearing away of a small portion of the pinna, severe bruising of the head about the right ear; hæmatoma of tissues about right eye, and hæmorrhage into conjunctiva. The right pupil was dilated, the left normal. There was a small parchmented scar over right scapula and also on the point of the right shoulder. No other marks of violence were found on the body.

On turning back the scalp, much effusion of blood into the substance of the right temporal muscle was observed; and on removing the skull cap a fracture was seen extending across the right parietal, right orbital plate of frontal, base of sphenoid, in sella turcica and left greater wing of sphenoid bone, and also along the front of the left petrous portion of the temporal bone parallel to the ridge. The brain showed moderate laceration at the base of the temporal lobe on the inferior surface. There was also extradural hæmorrhage; the brain tissue and meninges were otherwise normal. Both middle ears contained effused blood.

On section of the body the right pleural cavity was found to contain five ounces of blood and the left thirteen. None of the ribs on either side were fractured; but the eleventh rib on the left side was dislocated. The upper lobe of the left lung was emphysematious and the lower collapsed. The bronchi contained a considerable amount of bloody mucus.

The right lung was adherent to the parietal pleura by a considerable number of firm fibrous bands, the upper and middle lobes somewhat collapsed and the lower lobe ruptured in two places, one situated posteriorly, T shaped, the greater line of which was 9 cm. in length, running parallel to the base and the lesser extending upwards for a distance of 5 cm.; the other situated anteriorly, commencing a little above the base and extending upwards for a distance of 10 cm., parallel to the anterior margin. The bronchi were filled with blood, the vessels free, the pericardium was normal, the heart enlarged, the valves healthy, the muscle pale and brittle. The spleen, stomach intestines and genetalia were normal, the liver substance was pale, glycogen was present, but no sugar; the gall ducts were pervious. There was perirenal hæmorrhage on the right side, but the kidneys were normal. The œsophagus was normal, and the trachea was filled with bloody mucus. Extravasation of blood into mediastinal tissues was observed. The foregoing case is reported as possibly being of some interest; although a number of similar cases have been recorded, yet rupture of the lung without fracture of the ribs or injury to the chest walls is a somewhat unusual accident.

Status Lymphaticus.

J. M., a female infant, one year old, had been given a dose of 40 drops of soothing syrup and died a short time afterwards. The syrup contained one grain of morphia to the ounce. The autopsy ordered by the coroner showed the following conditions:—

Body of a well nourished infant one year old, rigor mortis well marked and slight post mortem lividity. On opening body, organs

fill cavities, heart rather large, auricles filled with firm clot, especially the right; muscle and valves healthy.

Lungs, pink in colour, crepitant throughout, vessels and bronchi free, substance on section healthy; spleen normal in size and healthy; stomach contains a small amount of partially digested food, mucosa of stomach healthy. Small intestines healthy, but Peyers patches and solitary glands very prominent; large intestines contain a considerable quantity of hard fæces, mucosa healthy; bladder contains a small amount of urine, mucosa healthy. Liver and kidneys healthy; the mesenteric glands very large and firm; the inguinal glands appear normal. Trachea and œsophagus healthy; pharangeal and bronchial glands much enlarged; axillary glands normal; thymus gland very much enlarged. Examination of brain showed nothing special.

The condition of status lymphaticus is somewhat rare, and is chiefly found in young children; the lymphatic glands and the lymph tissues throughout the body, the spleen, the thymus and the lymphoid bone marrow being in a state of hyperplasia.

The special interest lies in the fact, that these pathological conditions are found in cases of sudden death. Paltauf believes that individuals with this hyperplasia have lowered powers of resistance and are liable to paralysis of the heart.

A number of sudden deaths have occurred in children, where the only attributale cause revealed by post mortem examination was hyperplasia of the thymus gland.

The foregoing case shows this condition of lymphatic hyperplasia to a marked degree in the thymus gland, the pharyngeal, bronchial and mesenteric glands, and also in Peyers patches and the solitary glands, and to this condition in the case recorded may be attributed the sudden death following a dose of 1-12 of a grain of morphia.

The July number of the JOURNAL will contain a full abstract of the very complete paper presented before the Royal Society of Canada on 19th May, 1903, by Dr. A. G. Nicholls, upon the effect of the blood-sera of normal and immunized goats in modifying the progress of tuberculous infection.

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THE STUDENTS' UNION.

The medical student has always been a thorn in the academic side. To the arts man, with his head in the air and his soul in the ether, it does seem incomprehensible how any human beings could be so intolerant of authority, so incautious in language and so uncivil in conduct. The most prevalent explanation of this aberration of moral nature is that it is due to a lack of intercourse and want of familiarity with the members of the other faculties. But this obstacle to a more civilized way of life will soon be removed, and all the undergraduates of the university will meet together, the rich and the poor, the raw and the cultured, in the Students' Union. At least that is the proposal.

There is no intention for the present to discuss here the very real question of the utility of a Students' Union, or to advance an opinion as to whether in the main it is a good thing, and if so, how good, for the university; the relation of the medical student to the union and to the university at large is however a matter for legitimate consider-

ation. The late Dean of the arts faculty always took the ground that the professional students were not university students at all. This is probably an extreme view, but certainly in them Dr. Johnson used to discover the *fons et origo* of all unacademic deportment and unseemliness of conduct. Even the Principal himself on one occasion thought he observed a certain rawness of behaviour on their part.

The truth of the matter is, the student with purely academic aspirations comes to the university for one reason, and that reason is entirely distinct from the object of the professional student. This brings up the question as to why a student comes at all, and what the function of a university really is. Very few persons now hold the belief that it is to do nothing. That view has been abandoned even in the English schools, though it is not so very long since Sir James Fitzjames Stephen wrote: "the three or four years, during which I lived on the banks of the Cam, were passed in a very pleasant though not a very cheap hotel. But if they had been passed in the Clarendon in Bond Street I do not think that the exchange would have deprived me of any aids for intellectual discipline or for acquiring literary or scientific knowledge."

A very common notion is that a university is a place for study. A university used to be occupied by grown men of laborious vigour, bent upon acquiring the knowledge then extant and the deductions and conclusions that were held to flow naturally from its possession. There, the finer classics, the subtler thoughts and fancies, the more evanescent shades of meaning inherent in words were held to constitute scholarship, and in it were included poetry, literature and imaginative play. The newest view is that a university should fit men for what is called life, that is for struggling with the forces of nature, whether it be in seeking for gold, bridging chasms or building railways to connect one town with another. To this end science was thought to be the thing, in giving to men a superiority over the brute force of nature. There is a good deal to be said for this view of the case; for who can build a bridge better than an engineer, or find a coal mine quicker than a geologist? Certainly, the man trained merely in the methods of the older dramatists, or skilled to trace the sequence of the amours of Horace would have no obvious advantage in the useful employment of bridge building or the mining of coal. Yet, there are many who will agree with Dr. Johnson that to teach these things is not the chief function of the university at all.

No one ideal will serve for all universities alike. At Cambridge, as Mr. Bagehot made clear, the scheme of tuition aims to teach students the discoveries of Cambridge men, dynamics and the latest de-

ductions in the more obtruse sciences; at Oxford, on the other hand, all attempts at any such novelties are disdained, or were so until very recently. Again, the profit to students from a residence at either of those seats of learning is anything but scholastic. The young men of England are educated—as the process is called, by Englishmen, with that curious capacity of theirs for calling things by wrong names—in different schools. They come to the universities to learn each other's names, to know each other's faces, to attain certain manners, to form friendships which shall give them a good start in English life. In the Scottish universities a boy is confirmed in the obstinate traditions of his race; in Germany he attains to a social position to which not his birth and certainly not his breeding would entitle him. All these are definite objects and clear ideals, though many will be found to deny the utility of maintaining such splendid establishments for their propagation.

No university can attain to anything more than provincial greatness which does not minister to some one definite idea. What that idea shall be is a matter of slow growth, and fidelity to a long tradition. For nearly a century Harvard was nothing more than a "wooden college, in Cambridgeport," supplying ministers to the congregations, lawyers to the courts, and to the young men of Massachusetts a certain training in the classics. For causes into which it is not necessary to enter here, the people of Boston and its vicinity, partly by a process of growth, and partly by adoption arrived at a certain view of life, and to-day Harvard stands for that view. It does not matter for the present purpose whether that view be the correct one or not; at any rate, it has largely prevailed and there is a running together to Harvard from all parts of the country of students who are impressed with the value of that idea. From the same family one boy will go to Harvard; another will go to Yale because he is impressed by the Yale Spirit. This Yale spirit is a thing of definite growth, until now it has come to signify the desire and capacity for success, as success is generally understood in the United States, to be first in all the activities of life, in football, in business, in munincipal government, state politics and national statesmanship. Nearly all the men of eminence in affairs in the United States, who are graduates of any university, have graduated—or were graduated, as they say themselves—from Yale. No one pretends to say that this was the confessed idea of the founders of the college; probably they had no idea beyond meeting the local needs of the case. In the beginning, Yale was a mere collegiate school, and classes were held anywhere, now at Saybrook, now at Killingworth, and again at Milford. The charter was changed from time

to time to meet the new conditions, and it is not more than twenty-five years ago that Yale was erected into a university as the abode of the Yale spirit. It would be easy to go through the list of the great American universities and show that each stands for something and those, that are not great, are not great because they stand for nothing.

What then is the ideal and object of Canadian universities? With the exception of McGill they are all purely local and provincial in their aims. Queen's, until very recently, had for its object the supplying of very excellent ministers for the Presbyterian Church, as King's did for the Anglican, and Sackville for the Methodist community. Dalhousie was busy developing a love or hatred of the classics, as the case might be, and supplying teachers for the smaller American colleges; and Toronto still seems to be consuming its energies in securing a provincial grant, which makes it more provincial still, and in keeping graduates of McGill out of the Ontario public schools. There are signs of improvement, however, and Queen's especially is lifting itself above its purely local environment.

The situation of McGill is peculiarly favourable for developing and being dominated by a university idea. It is in a province and yet not of it; it does not represent the Quebec spirit—Laval attends to that—as Toronto represents the spirit of Ontario, and Dalhousie the spirit of Nova Scotia. It is free from the oppression of purely local influences; it offers to students a freedom of mind; it opens their eyes to how queer and extraordinary the ideas are that they previously held. No man can foretell the course of any human institution, not even a writer in a medical journal, but it is not displaying wisdom beyond the needs of the case to say that a university must have an idea, that it must live close to it, that every act, every appointment—and every superannuation—must make for its establishment.

Without, then, being wise beyond the event, it may be said that the idea of McGill University, for the present at least, should be to fit the young men of Canada for an intellectual life, to teach them that everything they do, whether it be practising medicine or law, or building bridges or excavating mines, should arise out of and in turn minister to that life. If they are given the right point of view they will see all things in the proper relation. This education will not make them more clever; it will make them more sober and more calm. The Principal and the late Dean of the arts faculty will probably dissent from the view that the medical student is above all others remarkable for sobriety and calmness. He has begun to see things face to face in the dissecting room, and in the laboratories, and he is learning that his previous knowledge was in no way remarkable. His discovery—

to him a discovery—of the misery and suffering that are in the world has aroused his sympathy and with the heedlessness of youth he may be a little intolerant of the purely academic student, who does not know that his notions are old notions and that he has not yet touched the facts of life. The medical student has put away childish things, and his boisterousness is only his own way of signifying his desire that his fellow-undergraduates should also put away the childish things of which they are possessed.

It may appear that this is a great deal of writing about a small matter, but the Students' Union is not a small matter—in the eyes of its promoters at least. They hope that it will be the means of promoting the university idea, not in any Chauvinistic sense, but in the widest way, and that end is wholly good. If the students can be brought together under any circumstances, they will learn much from each other, and the medical student will not be the greatest debtor of all.

THE TEACHING OF ANATOMY.

The teaching of human anatomy at McGill has been made more human still by calling attention to the lives of the great anatomists as well as to the bodies of the anatomised. A certain portion of the time has been set apart for the students to give the results of their researches into the career of men whose names had only been associated in their minds with an obscure foramen, a gland they had never seen, or a canal of doubtful existence. There has always been an inability on the part of the students to realize that the teachers with whom they come in daily contact are mere mortals like themselves; that is why they are more amused than the occasion would seem to warrant by a display of humour or even by a mild exhibition of temper occurring in the course of a lecture. Their surprise is all the greater when they discover manifestations of humanity in the recorded lives of teachers long dead who have had no real existence in their minds. A student learns with wonder that his teachers on occasions divert themselves with light conversation, that they have other sources of amusement than reading a medical journal; but that revelation scarcely extends to the writers of text books, the discoverers of organisms or the originators of operations. Nothing could be more salutory than this stimulation of the human interest.

Another discovery of value is that graduates do not carry all knowledge in their heads, that books may at times be consulted and students are encouraged to prosecute their researches a little further than

their text books guide them. They gain a familiarity with the body of literature by this device of searching for themselves, and learn that the next best thing to knowing a subject is how and where to find out all about it. It may be possible in time to collect together this series of studies into the lives of the anatomists and give them a wider currency than in the class room. This stimulation of interest is the natural result of the system of teaching anatomy at McGill these twenty years. The best medical teaching is that which aims to bring all facts into relation with each other, and all subjects into a relation which shall have a bearing on the main business of the student which is the understanding of the nature of disease, the prevention of it, and the healing of the sick.

The facts of anatomy are of very little value in themselves, yet the primary student would probably be well advised in not taking this cryptic saying too literally. As a matter of abstract theory there is only one way of teaching anatomy, and that is after the method of morphology, which will also include comparative anatomy, but for the medical student this is a counsel of perfection. He has not the time, he has not even the time to learn the finer anastomoses about the joints, the particulars of the bones of the ear, the palate and the wrist, fascinating as those details are to an examiner. Morphology and comparative anatomy can only be used in an illustrative sense, and it is in so using them the skill of a lecturer consists. Lectures, indeed, are only themselves demonstrative and explanatory to elucidate obscure places by diagrams, drawings, slides, specimens, anomalies and descriptions.

The lecturer is to guide the student, to insist upon special attention being given to this subject or to that, to osteology, to the viscera, to the lymphatic and nervous systems; he is to indicate what may receive less attention, and what may be neglected with safety, all to the end that the student may be converted into a safe practitioner. But, after all, the dissecting room is the place. There the student learns for himself; he trains his hand to obey, he trains the eye to see, and the mind to comprehend. In the old days, when subjects were obtained at long intervals, men were brought from far and near to witness the dissection, but that time is gone by, and each student has to worry out these things for himself. A great deal he will never know, a great deal he will forget; but what he works out with labour will always be his own, especially if he learns it with interest, and it is for that reason the curiosity of the student is to be aroused in reference to the great anatomists as well as to all the other masters of medicine who have preceded him.

THE CHURCH AND THE PROFESSION.

It is a commonplace of political history that in the beginning the dual functions of priest and physician were held in common, and one who witnessed the occupation of nearly all the pulpits in Montreal on a recent Sunday by members of the medical profession might infer that they were returning to the primitive practice. That inference is probably unwarranted, but the very fact must have appealed to men's minds and given to the message an unusual significance. It was significant too of the attitude of the church and its willingness to cooperate in a work which for a long time has been held to be without its reach, but in truth, at times when the church was losing its authority over the minds of men it always regained that authority by ministering to their bodies; the Gray Brothers of Francis and the Black Brothers of Dominic proved that much.

Strange as it may seem, the present situation of the working people is much the same as it was in the middle ages. The rapid progress of population in the old boroughs outstripped the sanitary regulations, and fever, plague, or the more loathsome leprosy reigned in the wretched hovels. It was to these haunts the gentle Francis directed his disciples, and they took up their abodes in the noisome lazar houses, in the shambles of Newgate, or in the swampy marshes between the city walls and the Thames. The population of the great modern cities has again got ahead of sanitary control, and even where all public facilities are provided and all reasonable regulations enforced, there yet remains the wide field for domestic and personal hygiene. It is to this work the church and the medical profession can jointly apply themselves.

The ministerial association of Montreal, representing all the non-Catholic bodies, and the archbishop, for the older church, adopted most kindly the suggestion of the publication committee of the league against tuberculosis, that the people should be addressed upon the danger to which they are subjected, the menace they might become to others if infected, and the means of obviating the double disaster. Probably nothing new was said upon the pathology or prophylaxis of tuberculosis, but it must have been new to some of those who listened to the addresses; interest in the subject was awakened and the whole experiment marks another advance upon the "Captain of the men of Death."

Those who are wise beyond present requirements affect to believe that a reign of terror will be established by proclaiming the infectivity of tuberculosis, that false hopes will be raised by preaching its cura-

bility. It may not be a bad thing to employ fear to bring men's minds to a realization of the dangers to which they and their children are exposed; if some hearts are made faint by hopes falsely raised, others will be cheered by the new doctrine of curability, and finally when this plague is abated Nature may be trusted to discover some new method for destroying her own weaklings. Another observation worth making is, that it will do medical men themselves no harm to be brought into a closer even if temporary contact with the church.

THE REGISTRATION OF DEATHS.

The United States census office has recently been organized upon a permanent basis, and the Director, W. R. Merriman, with W. A. King, the Statistician, are applying themselves with diligence and ingenuity to the great work of registration of vital statistics. The difficulty they have to contend with is that registration is now governed by regulations of the individual states, and there is no such uniformity as prevails in the Registrar General's office in England. To secure uniformity a movement for the extension of registration legislation and methods upon such lines as experience has demonstrated to be necessary has been initiated by the census office in conjunction with the American Public Health Association. This movement has been approved by Congress in a resolution which recites the necessity for it, and requests the favourable consideration and action of the State authorities, to the end that the United States may attain a complete and uniform system of registration. The aim is to secure more complete and accurate data for vital statistics by promoting the extension of registration of births and deaths upon uniform lines, and to make the registration records of greater value to individuals by insuring the proper registration of all births and deaths that occur.

The collecting of statistics of mortality is of great importance for sanitary purposes and the science of sanitation is coming to be one of the most important considerations of government, but it necessarily depends upon accurate statistical information. The Federal Government has no authority to provide a uniform system of registration of deaths, but must depend upon local authorities to do that work. Statistics of that character, if they are to have any peculiar value, must be gathered from large areas and stated periods, covering a number of years, and the results of comparison and analysis of statistics can only be reliable if the statistics are accurate. In fully one-half the States there are no laws whatever requiring the registration of deaths, and in a number of other States the laws are very imperfect or imperfectly administered.

A standard certificate of death has been proposed to cover all the information generally required under an advanced system of registration, and every item has its own distinct purpose. A vast amount of labor has been necessary to produce these documents, and if physicians, registrars, and others interested can be brought to give their hearty co-operation, a great improvement can be made. The subject of vital statistics is one that should find a place in medical teaching and the movement inaugurated in the United States should extend to this country. In such a case facts of the most vital value could be elucidated.

PROFESSOR VON MIKULICZ.

Just as there are artists' artists, so amongst medical men are there those looked up to and appreciated not because of their popular reputation or their professional success but because they commend themselves to their fellow workers by the manner of their work; they approximate to the ideal formed by their colleagues of what a physician or a surgeon should be. Whether the public appreciate them is here a secondary matter; it may or it may not. Such a surgeons' surgeon is Johann von Mikulicz. Ever since the days, now years distant, when he was first assistant to Billroth in Vienna, he has attracted the attention and affectionate respect of other surgeons not merely in Austria and Germany but in all the countries of the civilized world. His technique as an operator and his judgment are by them recognized as admirable; his capacity as a clear and weighty writer is equal to his wide experience and is accompanied by a fertility of resource which has led him to devise more than one well known procedure. We need, for example, only refer to his development of the operation of pyloroplasty, as indeed also to all his work on the stomach and intestines; to his osteoplastic resection of the foot, and to his system of hand-disinfection, recently perfected. And over and above all these characteristics of the master in surgery, is that lively, frank geniality, not exactly the attribute of the North German, which renders the pilgrimage to distant Breslau a happy memory to all who, attracted by his fame, have been impelled to undertake it; making that pilgrimage, each and all know that they have made a friend.

It was thus a singularly great pleasure to welcome him recently in the course of what was his first visit to America, when, in response to an invitation extended to him by one of our colleagues he spent a day in Montreal. Nor was the pleasure lessened by the thought that, brief as was his stay on this continent, he held it worth his while to visit us. We know and pride ourselves upon the fact that surgery in Montreal is

sound and progressive and that the hospitals are of the first order, but little is done to advertise these facts to the outside world. Nay, if we may be permitted to accuse ourselves, the surgeons do not contribute to the literature of their subject nearly as much as might reasonably be expected of them, and too much of the good work here accomplished passes unregarded and does not loom as large as it should in the eyes of the medical public. That, all this notwithstanding, Professor von Mikulicz knew Montreal so well by reputation that he was anxious to visit it, has been a source of genuine gratification.

A few months ago there was printed in this Journal the impressions of an English physician upon the American hospitals and methods of medical education, contributed to the *Manchester Medical Chronicle* and based upon a visit to New York, Philadelphia, Baltimore, and Montreal. The outspoken acknowledgment therein made of the rate at which we on this continent are advancing and the position we have reached in matters medical, was not a little interesting. Professor von Mikulicz has given utterance to somewhat similar remarks regarding American surgery. After these years of strenuous and enthusiastic effort, of careful study at first hand of the methods, not of one school, but of every advanced worker in all countries, of willingness to adopt and adapt each variation in technique, however trifling, which has seemed to promise improvement in results, it is good to see that the labour is beginning to bear fruit and that the leaders in Europe are crossing over to us on this continent in order to study our methods and their results. Sound conscientious work must tell in surgery as in all other provinces of human endeavour. Visits like these should give us confidence to advance still further and, above all, confidence in ourselves, our workers, and our schools.

THE ROYAL SOCIETY OF CANADA.

May has, as usual, brought the meeting of the Royal Society and has at first sight, brought the usual meeting; that is to say, something under half of the one hundred or so selected learned men of the Dominion, self-elected as Fellows of the society, gathered together for three days at Ottawa and spent the greater part of the time devoted to business in hearing from visiting delegates how the *societé littéraire et philosophique* de St. Louis du Mile End progressed the past year, special reference being made to the eloquent address by Monsieur F. X. O'Neill on, "the archaic purity of the French language," as spoken at St. Louis du Mile End, and again, the statement in detail of the papers read at the monthly meetings of the women's antiquarian

society of Moosejaw, included among which were papers upon such elevating subjects as "my journey to Paris," by Mrs. Aholiab McQuirrk. At least we gather thus much from our enquiries as to what was accomplished. Our old acquaintance, the hydrographic survey of the Gulf of St. Lawrence was, judging from the press reports, once more in evidence, as again the appeal to the Government that it should provide a National museum at Ottawa, which should incidentally contain a room—if only a little one—to house the books and papers of the society.

And yet, on further study of the proceedings, the meeting was out of the ordinary. For once there was evidence that medical science came in for recognition. For the first time, if we mistake not, a medical man was President—in the person of Sir James Grant—and the presidential address was upon a medical subject, one that Sir James has made peculiarly his own—"brain power and how to preserve it." Another medical man equally well-known was selected to deliver the popular science lecture in the person of Professor Wesley Mills, who gave an illustrated address upon "a chapter in the physiology and psychology of music." Music, it is true, is not specially a medical subject, but physiology and psychology are sciences ancillary to it, and, after all, it is not the subject of the lecture, but the fact that one of our body was chosen to give it that particularly appeals to us.

Nor were papers wanting in the different Sections of more or less immediate interest. In Section II., the Reverend Dr. Bryce of Winnipeg discussed the various ethnological types of Rupert's Land;—the Sauteurs, the Swampies, the Wood Crees, the Plain Crees, the Stonies, the Refugee Sioux, the French Halfbreeds, or Metis, and the Selkirk Colonists. In Section III., upon mathematical, physical and chemical sciences, Professor Lash Miller of Toronto gave a short note upon the investigations conducted by himself and Professor J. J. MacKenzie upon the bactericidal action of solutions of phenol containing salts and the chemical potential of the phenol in the solutions, and in Section IV., besides the presidential address to the section, upon "some aspects of the evolution of comparative psychology," by Professor Wesley Mills, there was presented a paper by Dr. A. G. Nicholls of McGill, upon "an experimental enquiry into the effect of the blood serum of normal and immunized goats upon the tuberculous process." This last paper, after giving a retrospect of the various attempts that have been made by other observers to obtain a specific antitoxic serum for the treatment of tuberculosis, described in detail a series of experiments conducted during the past two years upon tuberculous guinea-pigs and rabbits, made by injecting the sterile blood-serum of

normal goats; then, the normal serum being found to have little effect, a further series of experiments was made in which the blood-serum of goats treated with progressively increased doses of Koch's tuberculin emulsion, was similarly employed. We understand that this very full series of experiments was conducted under a grant presented by the Hon. E. H. Bronson of Ottawa, and that Dr. Nicholl's results, while indicating that it is possible to increase the protective properties of the goats' serum, were not sufficiently marked to convince him that this blood-serum would be useful in arresting tuberculosis in man. His series of experiments is, however, admittedly not complete. The observations of Behring, Ravenel and others, which indicate that active immunity can be produced in cattle by inoculations of tubercle bacilli obtained from the human being, suggest the desirability of similar inoculations in the goat to determine whether the conferment of such active immunity by means of living tubercle bacilli leads to the production of a serum capable of giving passive immunity to other animals.

We are glad to see that at last the Royal Society is becoming the medium for the communication of serious investigations in medical science, such as these of Professor J. J. MacKenzie and Dr. A. G. Nicholls. Until now it has been very largely neglectful of work of this order; while obscure and dilettante bodies like the aforesaid literary and antiquarian societies are given prominence in the annual reports and are invited to send delegates to the annual meetings, not a word is said in that report regarding the existence of such important channels for the announcement of original scientific investigations as, for example, the Canadian Medical Association or the Montreal Medico-Chirurgical Society; the Toronto Pathological Society and the Lister Laboratory Club at McGill, devoted yet more particularly to the scientific aspects of medicine, are equally passed over. This is a grave mistake and should not be. The proceedings and the transactions of the Royal Society should duly reflect the scientific activities of this Dominion in every direction, and the investigations conducted in the physiological laboratory of Toronto university and the pathological laboratory at McGill, are amongst the most important contributions to Canadian science of the last few years. But up to the present moment, for all the recognition they have received from the Royal Society, they might be non-existent. Therefore, it is hoped that this year marks the beginning of an era of due recognition of the medical sciences.

We cannot and would not pretend to criticize the literary section of the Royal Society but, as regards the scientific section, an opinion

may be offered without offence—and it is this; that with the present limited number of Fellows the annual meetings can never be a genuine success. There is an advantage, it is true, in those interested in various branches of science meeting each other annually and coming thus to know each other; it is more than questionable whether this social advantage will ever be sufficient to ensure a regular yearly attendance of Fellows from all parts of the Dominion for a three day's holiday, "le jeu ne vaut pas la chandelle." Could the botanists be assured of meeting a goodly number of other botanists and of hearing and debating a fair number of contributions to the science, the case would be very different. If it takes nine tailors to make a man, it assuredly takes more than three botanists to make a successful meeting—botanically speaking, that is. A solitary professor of pure zoology, an odd entomologist, a single pathologist, two physiologists, three botanists, four chemists, and so on, all labour under the same disadvantage. In one branch of science alone, namely, in geology, is there any considerable number of Fellows, and it is worthy of note that it is just in this subject that there is a due and proper activity on the part of the society, and that the communications in the transactions maintain a uniformly high standard. Admitting this is, however, not the same as admitting that the Royal Society is a useless body. That we strenuously deny. The society is capable of great things, and as the authoritative representative of science in Canada, is capable of influencing the government and the country to their best advantage, and more particularly do the transactions afford a medium for the publication of work of the first order, work which, from its specialized nature and length cannot easily obtain publication elsewhere—work which by the liberal foresight of the Government, can be freely distributed to the centres of learning in other countries, thus advertising the standard of scientific advance attained by Canada, and the opportunities here afforded for research.

On the whole, the papers published in the transactions have been of a high order. Their standard might be steadily raised and greater power given to the authorities to eliminate contributions not of the first rank. And as already indicated greater encouragement might well be given to receive for publication serious studies in all branches of science to the end that the transactions worthily represent all the scientific activities at work in the country.

Reviews and Notices of Books.

Obstetrics. By J. Whitridge Williams, Professor of Obstetrics, Johns Hopkins University. Pp. 845, with eight coloured plates and 630 illustrations. Published by D. Appleton & Co., 1903.

Dr. Whitridge Williams' long expected book has at last appeared. He has dedicated it to his friends William H. Welch and William T. Councilman, and in so doing he has done well, as the book bears throughout evidence of research and original work by its author, especially in the pathology of obstetrics.

At the outset, one may say that the book is worthy of an exalted position in the literature of modern scientific obstetrics, and will bring no discredit to the illustrious names it bears on its dedication page, nor to its distinguished author.

In the preface, one notes that Dr. Williams aims at thoroughness in the discussion of the subject, and it may be fairly conceded that in this he has been successful.

The following sentence from the preface is very significant of the trend of modern teaching. "Especial attention has been devoted to the normal and pathological anatomy of the generative tract, in the hope that the book may prove serviceable as a laboratory guide to students." Certainly, as a laboratory guide to students, the work is all that could be desired, and while as a clinical guide its strong points are not so apparent, the book leaves little to be desired from a practical point of view. The general style of the book is excellent. It reads easily, is clear, concise, and modest in its tone.

The author shows a decidedly conservative tendency in most things, for example, he strongly advises against cocaine anæsthesia in obstetrics; again he sees no special advantage in the fundal incision of Feitsch in Cæsarean section; while in discussing symphysiotomy the author agrees with Bar, Budin, and others in considering it a more difficult operation than Cæsarean section, and states that it should never be attempted in infected cases. Dr. Williams concludes the chapter on this subject, with the following sentence:—

"Personally, at the present time, I do not expect to perform symphysiotomy under any circumstances, and consider that the present enthusiasm for it will eventually disappear."

The general arrangement of the subject matter is good, though it is difficult to see the advantage of discussing obstetric surgery immediately after the physiology of labour and before its pathology.

The consideration of certain subjects, from the standpoint of the student, is scarcely adequate; for example, while forty pages are

devoted to puerperal infection, all other pathological conditions associated with the puerperium are dismissed in seventeen pages. Again, in discussing asphyxia of the new born, the author does not mention Sylvester's method of artificial respiration, and states that "generally speaking, Laborde's method of tongue traction is the most effective method at our disposal," a statement with which few will agree.

Contrary to most English and American obstetric writers, Dr. Williams prefers the so-called cephalic application of the forceps, to the pelvic, in all but high operations. In other words he recommends that in all cases the blades should be applied so as to grasp the fœtal head on either side over the ears, irrespective of the relation of the instruments to the sides of the mother's pelvis. Thus, in dealing with occipito-posterior cases he follows the method long ago recommended by Scanzoni, the double application of the forceps. The blades are first applied with the pelvic curve looking toward the face of the child; in delivery, rotation of the occiput forward is favoured by means of the instruments, then when completed, the blades are removed and re-applied with the pelvic curve directed toward the occiput. With this method the author has obtained the most satisfactory results, and states that he has "ceased to dread occipito-posterior cases" and "regards them with equanimity." Dr. Williams employs the Tarnier axis traction instrument in all cases, where forceps are necessary.

The chapter on eclampsia is particularly good. The author employs morphia in large doses in the treatment of these cases, and is rather opposed to early operative interference. He is not an advocate of manual dilatation when the cervical canal is intact, nor of Dührssen's incisions, preferring to use steel dilators and the *Champetiere de Ribes* bag. Cæsarean section is considered preferable to "forcible and brutal" dilatation of a rigid cervix.

Dr. Williams is in favour of bleeding in these cases, stating that he has bled with excellent results a number of patients whose pulse was thin and weak.

In the treatment of puerperal infection, the author depends on the bacteriological examination of the lochia obtained from the uterine cavity by means of the Menge tube, for guidance. If this examination reveals the presence of streptococci, all local treatment should at once be omitted. In putrid endometritis he advises clearing the cavity of the uterus of debris, with the finger, and then douching with sterile salt solution. Dr. Williams shows the ineffectiveness of antiseptic intrauterine douches and believes they not infrequently do harm

from retention and absorption. The author strongly opposes the routine use of the curette.

He is not favourably impressed with the action of antitoxic serum in these cases, and considers that its therapeutic value has not been sufficiently established.

The book will prove most useful to physicians and advanced students, as two of its most valuable qualities are the extensive bibliography at the conclusion of each chapter, and the satisfactory character of all the illustrations, most of which are original.

A System of Physiologic Therapeutics. Edited by Solomon Solis Cohen, A.M., M.D. Vol. V. Prophylaxis, Personal Hygiene, Civic Hygiene, Care of the Sick: by Joseph McFarland, M.D., Henry Teffman, M.D., Albert Alvanes, A.M., M.D., and W. Wayne Babcock, M.D. Philadelphia, P. Blackiston's Son & Co.; Canadian Agents, Chandler & Massey.

This volume is the fifth to appear of a series of eleven, all comprising a system of physiologic therapeutics; the previous ones dealt with electrotherapy and climatology, two volumes to each subject, and this one covers prophylaxis, hygiene and the general care of the sick. As such, it serves as an introduction to the science of medicine and takes account of many things, the cause of disease in general and its prevention, the many problems connected with civic and personal hygiene. There is a wealth of information in the book, though the subjects are so numberless that too much can not be expended upon any one; there is enough, however, for anyone who has no previous knowledge of the subjects and requires a connected account; it is correct and easily accessible. The plan of the book is thoroughly sound and the first part, the origin and prevention of disease, is admirably dealt with by Dr. McFarland and Dr. Babcock; the writing is succinct and entertaining and the facts correctly if briefly stated. the second part, civic hygiene, by Dr. Leffmann, is not so well done. It occupies only forty pages and the meager space is encroached upon by drawings and photographs to illustrate the Manchester experiments; these pictures are a familiar feature in every book of the kind issued since Dr. Lideal carried out his remarkable experiments. The author observes that, "there are some erroneous views prevailing as to the nature of water pollution and its removal"; that is very probable, but we take leave to say that Dr. Leffmann has not done his best to set those views right. To teach that well-water in polluted districts shows a practical freedom from bacteria is a dangerous proceeding; such water may be free, but usually it is not.

Again, it is doubtful if "the proper method of purifying water is by filtration through the soil"; certainly, that method is not imitated by filtration through sand. The two processes are entirely distinct. In the soil the changes are chemical, on the sand the purification is done biologically in so far as these two processes can be distinct, and in the latter case the filter, or what the Germans call the "Schmutzdecke," is formed by the living organisms themselves. It would seem as if there were a confusion between the slow sand filtration of water and the intermittent filtration of sewage. The last part of the book, dealing with the more personal matters, is done with wisdom and good taste. It is a curious commentary on the progress of medicine that eleven volumes could be published upon the subject without any mention of drugs; of course the works on the practice of medicine scarcely go so far as that.

A Practical Treatise on Materia Medica and Therapeutics. By Roberts Bartholow, M.A., M.D., LL.D. Eleventh Edition, revised and enlarged. D. Appleton & Co., New York and London, 1903.

In reviewing Bartholow's work, which has now reached its eleventh edition, one must remember that the first edition was published in 1875, and at regularly recurring intervals of two, three, or four years, has been revised and enlarged, proved and otherwise brought up to date. Such a hardy plant must have in it the elements of a strong vitality, and undoubtedly to the well-known author's personality and standing, as well as to his conservatism and care must be attributed the continued success of his work on materia media and therapeutics. It is, however, a matter of opinion whether the classification adopted nearly thirty years ago and still retained, is the best that could be devised for the present day, and one could wish that the special therapeutics introduced, had been brought together as a separate section instead of being scattered through the work. The absence of any reference to phototherapy or any mention of the ultra-violet rays and the work done by Finsen and his followers in lupus is to be noted. The section on static electricity is scarcely satisfactory to the practitioner familiar wth its use and is too indefinite for the student ignorant of its principles and application. In speaking of the current from the jars which simulates the faradic current in its power of producing certain effects on muscular tissue, it is a little misleading to speak of it as being "tapped." The current obtaned from the outside of the jars is an induced current, and the frequency so great,

that it far exceeds in alternations the current produced by any faradic apparatus apart from special high frequency coils. It would be interesting if the author could prove that among the ultra violet rays of sunlight there exist the X-rays, as seems to be inferred on page 474, under the heading of "Roëntgen or X-rays,'" and under the heading of equipment it is not quite clear to the uninitiated whether a static machine and a coil are required, or a supply from the street mains and a coil. This method of therapeutics is disposed of in some forty-two lines, with no reference to its use in malignancy, or certain skin diseased conditions.

One misses any mention of spinal anæsthesia under the headings "cocain," or "anæsthesia," while there may be question as to its ultimate utility, there can be no question as to the extent to which it is being practiced, and one naturally trusts to such a work for mention of it, especially as the Scleich method is quoted and the formulæ for its solutions given. Of the general excellence of the work there can be no question, and the printing and binding are in the usual unimpeachable style of the Appletons.

Diseases of the Heart and Arterial System. By Robert H. Babcock, A.M., M.D., Professor Clinical Medicine, College of Physicians and Surgeons, Chicago. D. Appleton & Co., New York and London; Canadian Agents, George D. Morang & Co.

This book of nearly nine hundred pages, beautifully illustrated and otherwise admirably made—as all Messrs. Appleton's publications are—deals only with the diseases of the heart and blood vessels, and the treatment is correspondingly full. It marks the growing tendency away from systems of medicine in which necessarily the whole ground is imperfectly covered and many parts left with inadequate treatment.

The method adopted is largely personal; cases are quoted, and pertinent comment is made upon them, so that the narrative is always entertaining. This human interest is a marked feature of the book, and one gets a vivid impression of the actual patient, his ailments and the improvement that followed upon certain methods of treatment. In this book the personal method has not led to scientific unsoundness, the bane of the clinical teacher; facts in anatomy, pathology and pharmacology are duly appreciated, but they are kept in their place and Dr. Babcock reveals himself as a physician one would like to consult if one were afflicted with heart disease. Men whose business it is to advise the sick will turn with pleasure to this book, and they will receive sound advice in regard to everything connected with Heart Disease.

INTERNATIONAL CLINICS. A Quarterly of Illustrated Clinical Lectures and original articles, edited by A. O. J. KELLY, A.M., M.D., Philadelphia. J. B. Lippincott Company, 1903.

There is no more authoritative publication than this. The contributors to this particular volume are Ballantyne, Billings, Cathel, Einhorn, Finger, Fussell, Jonnesco ,Keen, King, Manly, Osler, George Ross, Salterthwaite, Senn, Shands, John Thomson, Edward Watson and Wilcox. A glance at the contents reveals the richness of the material within; aneurism of the descending aorta, the treatment of cardiae and vascular fibrosis, Nauheim methods in chronic heart disease, the treatment of chronic urethritis, and the treatment of diphtheria. There are articles upon primary intestinal tuberculosis and pyloric obstruction, upon tic douloureux, traumatic epilepsy, carcinoma of the rectum, and of the maxilla, the results of the resection of the cervical sympathetic in Basedow's disease, acquired umbilical hernia in the adult, on convulsions in young children, and on the treatment of weak feet. The special articles on the greater importance of the organs in the right half of the abdomen, on functional reversion, and on the principles of embryology, are all of great significance and interest. The only fear one has, is that he will not have mastered the contents of this excellent volume before the next will appear; but, having done so, there will be a feeling of security, that not very much of importance in the medical world has been missed.

THE SURGERY OF THE HEAD, by Bayard Holmes, B.S., M.D., Professor of Surgery in the University of Illinois, Professor of Clinical Surgery in the American Medical Missionary College, Chicago, Attending Surgeon to the Chicago Baptist Hospital. D. Appleton & Co., New York.

This is the first volume of a series of books to be issued under the title of "Surgical Emergencies." Those conditions which are met with most frequently in every day practice are dealt with at greatest length. Unusual conditions, also important theories and principles are likewise discussed but not in detail. The book is clearly designed to appeal to the general practitioner. The importance of pathology, differential diagnosis and rational treatment are emphasized in every chapter. The work has been made clinical as far as possible. The numerous case reports, gleaned from medical literature, to be found in almost every chapter show this, and certainly add not a little to the interest and value of the book. At the end of each chapter is to be found a number of maxims and a list of the more important and recent literature bearing on the subject. The book is written in a clear and agreeable

style and is of a convenient size, printed on good paper and well illustrated, as is the custom of the Appletons.

The Practical Medicinal Series of Year Books, comprising ten volumes on the year's progress in Medicine and Surgery, issued monthly, in charge of Gustavus P. Head, M.D., Professor of Laryngology and Rhinology, Chicago Post-Graduate Medical School. Vol. V, Obstetrics. Edited by Reuben Peterson, A.B., M.D., Professor of Obstetrics and Gynæcology, University of Michigan. April, 1903. The Year Book Publishers, Chicago. Price, $1.25; series, $7.50.

The present volume is one of a series of ten, issued at monthly intervals and covering the entire field of medicine and surgery. The series is intended primarily for the general practitioner, and there is sufficient special information for his purpose. During coming months volumes will appear on general medicine, pediatrics, orthopedics, materia medica, climatology, preventive and forensic medicine, etc., until the whole ground is covered. The same publishers have just issued a similar work on gynæcology.

Progressive Medicine. A Quarterly Digest of the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D. Lea Brothers & Company, Philadelphia and New York.

This volume covers the first quarter of the present year, and deals with the surgery of the neck, head and chest, infectious diseases, the diseases of children, pathology, laryngology, and rhinology and otology. The contributors are Charles H. Frazier, James B. Herrick, Lloyd M. Crandall, Ludwig Hekoten, A. L. Turner and Robert L. Randolph. Each subject is dealt with in an authoritative way, but pathology is peculiarly profound, and Dr. Hekoten penetrates deeply into the Teutonic mysteries of which that subject is now so largely composed. No other record—good, as many of them are—quite take the place of this book.

The International Medical Annual, 1903. E. B. Treat & Co., New York. Price, $3.00.

This is the twenty-first year of publication of this year-book of treatment and practitioner's index, and the present volume gives an accurate impression of the knowledge of the past year. The book is an amplified dictionary and a rather careful search proves that nothing of importance, that has occurred during the year, is omitted. The arrangement is alphabetical and it is hard to see how a practitioner can do very well without this valuable summary of knowledge.

Medical News.

THE CONGRESS OF PHYSICIANS AND SURGEONS.

The sixth triennial session of the Congress of American Physicians and Surgeons was held in Washington, May 12th, 13th and 14th. This is a congress of the sixteen American societies, which deal with the subjects of medicine, surgery, opthalmology, otology, neurology, gynæcology, dermatology, laryngology, climatology, genito-urinary and orthopædic surgery, physiology, anatomy, pediatrics, medico-psychology, pathology and bacteriology. As such, it is a meeting largely of specialists.

The president was William W. Keen of Philadelphia, Professor of Surgery in Jefferson Medical College. He delivered the address on the second day before at least seven hundred members, choosing for his subject, "the duties and responsibilities of trustees of public medical institutions."

On the afternoon of the first day the work of the Congress began by a consideration of the pancreas and pancreatic disease.

Dr. Opie of Baltimore, read a paper upon the anatomy and histology of the pancreas, and Prof. Chittenden dealt in detail with its physiology and physiological chemistry. The pathological anatomy was dealt with by Dr. Simon Flexner of Philadelphia, and the symptomatology and diagnosis by Dr. Fritz of Boston. The surgery of the organ was considered by Prof. Von Mikulicz of Breslau, who based his observations upon some sixty cases. Dr. Roswell Parke dealt with the subject of tumours, cysts and fistulæ. An animated discussion followed. On the other days of the meeting the Congress considered the medical and surgical aspects of the disease of the gall-bladder and bile ducts.

A great deal of interest centred in the meetings of the two constituent bodies, which had to do with surgery, on account of the discussion that took place in connection with the work of Dr. Adolf Lorenz. Prof. Lorenz had accepted an invitation of the Congress to attend, but at the last moment he wrote that he could not be present and expressed regret that examples of his work could not be submitted. A report had become current that Dr. Lorenz and his methods would be thoroughly dealt with, and members were disappointed that he was not present. The discussion was very free. Dr. Gibney of New York, cited cases which had been considered cured, but afterwards developed tubercular meningitis as the result of the operation. He believed that the original deformity of the hip returned after the

operation in many cases, and he saw more good in the after treatment than in the operation itself, due largely to the plaster of Paris casts, and not to any special merit in the system. He advocated the continuance of the subcutaneous operations. In other papers that followed, Dr. Steele confirmed the statement as to the danger of tubercular meningitis after operation. Dr. Davis of Philadelphia, preferred to follow more closely what he called the original method as laid down by Paci, by which the members understood him to mean that Dr. Lorenz was not the originator of the methods which bear his name. Dr. Bradford of Boston, partly defended Lorenz's system, and Dr. Ling Taylor of New York, said that the danger lay in its use by those not acquainted with the proper procedure, yet he admitted that he had frequently observed total paralysis of the quadriceps and of the muscles supplied by the anterior tibial nerve.

Dr. Roswell Parke in opening the discussion, said frankly, that he considered the system a failure, as he did not think it advisable "to practice a system attended by the breaking of bones and the tearing of tissues."

Much interest was lent to the section of pathology and bacteriology, by the presentation of Dr. Councilman's paper upon the etiological factor in variola. It had been heralded in the daily press that Dr. Councilman had discovered the essential virus of smallpox, and for that reason no one believed it. The full account was published in the *Journal of Medical Research*, and while the title of the paper would lead one to believe that the pathological virus of smallpox had been discovered, neither the article itself nor his communication to the Society warranted this assumption, yet his work, it was acknowledged, brought the final discovery appreciably nearer.

At the meeting of the American Physicians, presided over by Dr. James Stewart, the contributions on the blood were noteworthy. Attention was called to the fact that many cases of acute lymphatic leukemia are evidently occurring in this country, though most of them remain unrecognized and masquerade under the guise of fatal typhoid fever and some of them doubtless as acute septicemia, especially after childbirth. At the second day's session Dr. Osler presented the clinical features of what he considers a new condition. This consists of chronic cyanosis without emphysema, renal or cardiac disease, but with a red blood cell count of nearly or quite 10,000,000, and his observations upon three cases were confirmed by the report of cases of more or less similarity from many parts of the country.

This was also the 59th annual meeting of the American Medico-Psychological Association in conjunction with the Congress of American

Physicians and Surgeons, with which distinguished organization it has lately become affiliated. The gathering was quite as successful as those of previous years, and nothing more complimentary could be said considering the success which for many years past has attended all the sessions of this body, the oldest organized medical association in America. The secretary, Dr. C. B. Burr of Flint, Mich., in conjunction with the vice-president, Dr. A. B. Richardson of Washington, had worked with commendable zeal for many months, and the arrangements made and the programme presented were highly commendable to them.

Addresses of welcome were tendered by Hon. H. B. F. McFarland, president of the board of commissioners of the District of Columbia, Gen. Geo. M. Sternberg, surgeon-general of the army (retired), and General Walter Wyman, surgeon-general of public health and marine hospital service, after which the president of the Association, Dr. G. Alder Blumer of Providence, gave his presidential address. This was a most scholarly effort, scintillating with wit and replete with practical suggestions on many topics connected with psychiatry and the care of the insane.

The attendance was large, though short of that at the 1902 meeting held in Montreal, which is regarded by all in every respect as the banner year of the Association, and included a fair representation from the various provinces of the Dominion. The contributions, taken altogether, were above the average in character, and many of the discussions were animated and interesting, notably those on traumatic insanity, a subject to the different aspects of which several of the papers were specially devoted.

A very pleasing feature of special interest to Montrealers and McGill University was the unanimous election to honorary membership of Prof. T. Wesley Mills, whose masterly address on the "reflexes, the ingoing or afferent impulses and their psychic correlatives," delivered before the Association last year, is still recalled with pleasure by all. The 1904 place of meeting has been fixed for St. Louis, Mo., with Dr. A. B. Richardson as President, and Dr. A. E. McDonald of New York, as Vice-President.

By actual count there were over four hundred papers read before the Congress and the constituent societies. In the surgical section Dr. Shepherd read a paper upon the treatment of aneurism of the external iliac artery by compression, and Dr. Armstrong reported cases of single ulcer of the urinary bladder, non-tuberculous and non-malignant in character. Dr. James Stewart gave a short address, and in the Pediatric Society Drs. Martin and Fry were down for a paper on some renal lesions in infancy. Dr. Lafleur described a case of Gastric Syphilis, and Dr.

McCrae presented an anlysis of 700 cases or typhoid fever from the Montreal General Hospital.

The next meeting of the Congress will be held in Washington in 1907 on account of the meeting of the International Society of Physicians and Surgeons at the same place in the previous year.

THE AMERICAN MEDICAL ASSOCIATION.

The Fifty-fourth Annual Meeting of the American Medical Association was held in New Orleans between the 5th and 8th of May, and was one of the most successful in the history of that venerable body. The arrangements for the presentation of papers, for addresses and discussions, as well as for social entertainment were very complete and those who were present testify to the excellence of the results.

This Association is growing in numbers and importance year by year, and as the only standard of admission is an honourable position in the profession, it brings together practitioners and specialists in a way that no other organization does. Apart from its value as a purely scientific body, it performs another and not less important function; it deals with the relation of the profession to the community at large and to all public interests.

The president, Dr. Frank Billings, departed from the usual custom in his opening address, and took into consideration the whole question of medical education, urging that the schools should be reduced in numbers and increased in efficiency.

The papers had a special interest to men from the North, inasmuch as they were for the most part a record of the results of men who work in surroundings quite different from ours. Dr. Happel gave his experience in the treatment of what used to be called continued fever, neither malarial nor typhoid in origin, and made a strong claim for the recognition of this condition. Continued fever as a distinct entity has pretty well disappeared from the text books, but the prevalent view in the South seems to be that it should receive a recognized place. This view was also confirmed by Dr. Krauss of Memphis. There was a certain freshness about many of the papers, from the fact that they dealt with conditions with which men in the North are more or less unfamiliar.

The great work this Association has in hand is the codifying of the rules of medical ethics, and upon this subject two reports were to have been presented. It transpired, however, that the two documents were merged into one declaration of ethical principles, which was considered satisfactory by men of all shades of opinion.

The next meeting will be held in Atlantic City, though Milwaukee

made a strong claim that it should be held in the metropolis of Wisconsin. It will be remembered that the Association met in Atlantic City only three years ago, and there again it will be accessible to a larger number of physicians than in the South.

The officers elected for the ensuing year were: President, Dr. John H. Musser, Philadelphia; First Vice-President, Dr. G. C. Savage, Nashville, Tenn.; Second Vice-President, Dr. Isadore Dyer, New Orleans, La.; Third Vice-President, Dr. C. Lester Hall, Kansas City, Mo.; Fourth Vice-President, Dr. Geo. F. Jenkins, Keokuk, Iowa; Treasurer, Dr. Henry P. Newman, Chicago, Ill.; Secretary, Dr. George H. Simmons, Chicago, Ill.

INTERNATIONAL CONGRESS OF MEDICINE AT MADRID.

This great gathering of physicians from all parts of the world was held at Madrid from the 23rd to the 30th of April, and from many points of view was a great success. During the first day or two there appeared to be a great lack of organization, but if one were to imagine a similar gathering in Montreal of seven thousand doctors, of whom three thousand, five hundred did not speak English, one might make some allowance for the confusion which would almost be inevitable, and was certainly in evidence at Madrid. The opening meeting in the Royal Theatre where the King and the Court occupied the royal boxes, where after an address of welcome by the President of the Congress, the chief delegate from the principal countries replied in his own language, was a brilliant affair and one not soon to be forgotten. Many of these great men could not be heard owing to lack of training in speaking in large assemblies, but the official delegate from Korea was a notable exception to this rule for he could be heard distinctly in every part of the great amphitheatre, although of course no one understood a word he said.

The next morning all of the seventeen sections were hard at work in the beautiful building of the National library and museum which had however the drawback of many of the rooms being *en suite*, so that it was necessary to pass through a great many of them in which meetings were going on in order to reach the last ones. While this meeting place had the advantage of being very central it would perhaps have been better if the sections had met in the class rooms of the university as was done in Montreal when the sections of the British Medical Association met in the class rooms of McGill Medical College. It would be impossible to even mention here the titles of all the papers which were presented; many of them were of a high order of merit, but owing to the extreme courtesy or politeness of the Chairmen there were prac-

tically no limits to the length of the papers or to the time allowed for their discussion. Here again it would be well for these kind-hearted gentlemen to take a lesson from the management of congresses in America, where the greatest man present is compelled as a rule to sit down when his time is up and where those who discuss the papers are only allowed to speak once and even then for five or ten minutes only. What is meant as a kindness to the few who wish to take more than their time inflicts great hardship on the many who would be satisfied with their share, but are crowded out by the long-winded or selfish speakers. The Spanish presidents and secretaries of sections did not allow any of the foreigners to be crowded out if it was possible to get their papers in.

While an immense amount of work was done in the sections the social side of the meeting was not neglected. The reception in the royal palace given by the King and his mother and sister, was a function which no one who was present will ever forget. During three hours these royal persons acted as perfect hosts, walking freely among their guests and conversing with them quite fluently in one of at least five different languages. They were enabled to do this more readily by the plan which was adopted of assembling all the delegates of one language in one of the vast drawing rooms leading from the throne room. The dignified yet most kindly demeanor of the young King and his royal mother towards their guests made a very pleasant impression upon all who were present. The reception at the foreign office was another magnificent affair as many hundreds of the diplomatic corps as well as the Army and Navy Surgeons from different countries were in their uniforms, many of which were almost covered with distinguished service orders. At neither of these receptions were any ladies present while for the reception given by the Mayor of Madrid, at which there were ladies, there were only five hundred tickets issued to the members of the congress. The bull fight which took place on Sunday after church was attended by ten thousand people. Eleven horses were killed before the three bulls were slaughtered. The opinion was generally expressed that the bull fight was more cruel than fox hunting. There was much private hospitality in the form of dinners and garden parties, one of the most pleasing of the latter being one given by a wealthy gentleman who had a stage erected, on which some of the best artists in Madrid gave presentations of native songs and dances. The influence of the Paris professors obtained the XIV Congress for Madrid and the same influence probably gained the decision that the next one would be held at Lisbon.

MONTREAL GENERAL HOSPITAL.

The following abstract is from the quarterly report of the Montreal General Hospital: Indoor Department:—Patients admitted, 735; patients discharged, 688; patients treated to conclusion, 752; patients died, 64; patients died within three days, 19; total number of hospital days, 16,991; average number of days per patient, 18.48; average number of patients per day, 188.8; ambulance trips, 278.

Outdoor Department:—Medicine, new cases, 519, old cases, 1,799, total, 2,318; surgery, new cases, 603, old cases, 2,493, total 3096; eye and ear, new cases, 361, old cases, 1,284, total, 1645; gynæcology, new cases, 47, old cases, 215, total, 262; nose and throat, new cases, 185, old cases, 581, total, 766; dermatology, new cases, 185, old cases, 282, total, 350; dental, 18; emergency, 505; total for quarter 8,960, an increase of 1,540 over corresponding quarter of 1902.

ROYAL VICTORIA HOSPITAL.

The following medical cases were admitted to the Medical Department of the Royal Victoria Hospital last month:—Typhoid, 12; pulmonary tuberculosis, 6; bronchitis, 6; pleurisy with effusion, 4; neurasthenia, 3; mitral stenosis, 3; myocarditis, 2; rheumatism, 8; sciatica, 2; chorea, 1; tetany, 2; epilepsy, 1; hysteria, 1; nephritis, 3; enlarged prostate, 1; pneumonia, 4; Addison's disease, 1; tabes dorsalis, 2; hyperacidity, 1; gastric subacidity, 1; gastric ulcer, 1; hypertrophic cirrhosis of the liver, 1; febricula, 2; lead poisoning, 1; pyæmia, 1; acute alcoholism, 1; cerebro-spinal meningitis, 1; hemiphlegia, 1; myelitis, 1; mitral insufficiency, 1.

WESTERN HOSPITAL.

During the quarter ending March 31st, 155 patients were admitted, of which 51 were medical, 80 surgical, and 24 gynæcological. The number of deaths was 11, of which 6 took place within three days of admission. The death rate for the quarter has been 7.9 per cent., or if those dying within three days after admission be deducted, 3.22 per cent. There have been 61 patients operated upon, of which 48 were surgical and 13 gynæcological. Total days of hospital treatment aggregated 2,292. The average number of days in hospital per patient was 14.78. In the outdoor department the total number of consultations for the quarter was 2,002; medical, 746; surgical, 297; gynæcological, 288; nose and throat, 298; eye and ear, 184; skin, 85; genito-urinary, 104.

MONTREAL FOUNDLING AND BABY HOSPITAL.

The annual meeting of the Montreal Foundling and Baby Hospital was held May 27th. The report showed the mortality to have been five per cent. less than the year before and ten per cent. less than the year previous to that. This good result was attributed to the method of whey feeding employed. The admissions during the year were 134, which with 31 in the wards at the beginning of the year made a total of 165. The deaths were 89, giving a mortality of 54 per cent. which is well down to the standard of the best institutions. More than half the admissions were from private maternities.

Dr. W. R. Campbell of Toronto has formed a partnership with Dr. Drinnan of Ponoka and will practice in that place.

The Annual Convocation of McGill University for conferring degrees in the Faculty of Medicine will take place 12th June.

Dr. Keown of Moosomin was operated on for appendicitis in Winnipeg by Dr. W. S. England on the 6th May and is making a good recovery.

An addition is to be made to the Woodstock hospital, which will double the present accommodation and include a maternity ward. At a meeting of the board held 12th May, the contracts were let and the work will be commenced without delay.

At the meeting of the city hospital board, Vancouver, 14th May, the secretary stated that the Government had decided to make a grant of $20,000 towards the building fund of the new hospital. During the month of April 84 patients were admitted to the hospital, 71 discharged cured, 4 died, and 55 remained in the hospital.

The Montreal Dispensary held the fifty-third annual meeting 14th May, at 145 St. Antoine Street. Satisfactory reports for the year were read and the following officers elected: President, I. H. Stearns; vice-president, Charles S. J. Phillips; second vice-president, Dr. J. M. Jack; honorary treasurer, George Esplin; honorary secretary, Dr. H. B. Carmichael; committee of management—the officers elect and Messrs. Samuel Finley, E. E. Rothwell, David Watson, Albert D. Nelson, Dr. H. D. Hamilton, Dr. Geo. A. Brown and Dr. A. T. Bazin.

The following are the results of the final M.D.C.M. examinations at Trinity University, announced 26th May:—

Gold medal, B. F. O'Reilly; silver medal, E. C. Beer; certificates of honour, H. E. Eaglesham, B. F. Consler, W. T. Gemmell, M. J. Perkins, A. G. Thompson.

Class I.—G. E. Chapman, C. H. Hair, equal; G. P. Campbell, A. W. Canfield, B. H. Hamilton, J. M. Baldwin, T. J. C. Tindle; R. A. M. Cook and C. C. Cragg, equal.

Class II.—J. H. Kidd, J. P. Cade, R. S. Conboy, R. E. Loucks, E. V. Smith, W. C. Arnold, F. R. Fursey, A. H. Campbell, W. W. Milburn, W. E. Mason, C. E. Duggan, D. Munro, A. C. C. Johnston, L. S. Pritchard, R. A. Fraser, C. B. Stone, J. A. Anderson, W. A. Lawrence, H. W. Coulter, G. F. R. Richardson, E. C. Dixon, F. W. Hill, B. D. Munro A. H. Cook, F. J. Dodd.

Class III.—Miss E. F. Lucas, C. R. Learn, J. W. Rowntree, H. F. W. Vernon, P. W. Tuller, E. T. Curran, A. W. Hicks, Miss O. M. Rea, W. E. Ekins, Miss M. G. Bryson, Miss L. M. Patterson.

In the primary class the following awards were made:—First silver medal, R. R. B. Fitzgerald; second silver medal, T. C. Brereton; certificates of honour, G. H. Carlyle, R. R. Smale, M. J. C. Naftel.

The recent medical act of Nova Scotia requires that all medical graduates shall pass the provincial examination before they can be admitted to the practice of medicine in that province.

These examinations are conducted by examiners appointed by the Provincial Medical Board and successful candidates, in addition to their college degree, receive another diploma admitting them as licentiates of the Provincial Medical Board of Nova Scotia.

The first examinations under the new act began Wednesday, April 29, and were concluded on Thursday, May 7. Most of the candidates were from among the recent graduates of Dalhousie, who intend practicing in Nova Scotia; those who propose settling elsewhere take the corresponding examination in their own province.

According to the results announced the following have been admitted as licentiates of the Nova Scotia Medical Board: Minna May Austen, Theodore Rupert Ford, Harvey David Hawboldt, William Alfred Lawson, Frederick Lessel, Kenneth Angus McCuish, John Angus MacIver, Kenneth Alexander MacKenzie, Albert Churchill McLeod, John Charles Morrison, Daniel Murray, Edmund Bambrick Norwood, Jacob Leslie Potter, Grace Elizabeth Bernard Rice, George Watson Whitman, Frank Valentine Woodbury.

Retrospect of Current Literature.

MEDICINE.

UNDER THE CHARGE OF JAMES STEWART, F. G. FINLEY AND H. A. LAFLEUR.

The Symptoms and Diagnosis of Stone in the Kidney.

R. Clement Lucas. "The Symptoms of and Diagnosis of Stone in the Kidney." *The Lancet*, April 25, 1903.

This article from the Hunterian Lecture of the writer expresses views based on his personal experience.

Pain, as a symptom of renal calculus, may be altogether absent. Numerous cases are on record where large calculi have been found imbedded in the kidneys without causing symptoms. This variability of the symptom of pain depends on two factors (1) the position of the stone, and (2) its mobility or fixation. The kidney itself is not a very sensitive organ; it may be handled or even punctured without much discomfort. The pelvis, however, especially that portion immediately around the outlet, is extremely sensitive. A movable stone impinging on this point causes excruciating agony. On the other hand large branched stones fixed in the pelvis merely cause aching pain, quite distinct from renal colic.

The character of the pain varies greatly in different cases. Most commonly it is an aching, gnawing pain extending from the loin through to the front on a lower level. The correct explanation of this pain is probably that it is due to reflection along the last dorsal nerve, and this view is borne out by the fact that it is almost constantly relieved by exploration and division of this nerve.

Attacks of renal colic, which are seen in their most acute form during the passage of a small stone through the ureter, frequently occur as a result of stone lodged in the kidney. Such attacks are most likely to occur from a movable stone dropping like a ball-valve over the outlet of the pelvis. The sudden blocking of the urinary secretion tends to produce a uræmic condition with vomiting.

Colic may also result, in a modified form, when a stone lies loose in a dilated cavity. Hydro-nephrotic cavities containing a loose stone, which is driven into the narrow neck of the calyx, may also induce colic, as may free hæmorrhage with the formation of blood-clot within the pelvis of the kidney.

Pain, in addition to being reflected along the usual nerve tracts, may be felt in the thigh, knee, hip, ankle and foot, along the branches of

the anterior crural and sciatic nerves. It may be felt almost exclusively in the testes, and the renal origin may be completely overshadowed.

Increased pain at night is sometimes complained of, and is regarded by the writer as due to the pressure of a large stone on the lumbar nerves. Turning in bed tends to drag on the nerves about its pedicle, and many patients are unable to sleep on, or even turn to the opposite side without pain.

Tenderness over the kidney is a sign of value, especially when the stone is large and angular. During a deep inspiration the kidney can sometimes be caught between the hands, causing a sudden lancinating pain. Should blood appear in the urine after such manipulation, it still further confirms the diagnosis.

Increase of pain by jolting is a valuable sign, and an accession of pain after riding in a light cart or even a rough railroad, should awaken suspicion.

The stamping test is sometimes attended by remarkable results. The patient supports himself on a firm object with one hand, then flexing the thigh fully and bringing the heel down firmly on the floor. A sudden acute pain is commonly caused by this manœuvre when a calculus is present. In one case it induced a violent attack of renal colic.

Hæmaturia may occasionally occur without any serious pathological lesion. "Some persons bleed from the nose, others from the kidney," was a favorite dictum of the late Sir William Gall.

Hæmaturia may be entirely absent throughout the course of the disease, and curiously enough often with large angular stones. On the other hand hæmaturia may be profuse and yet quite unassociated with pain. Hæmaturia is almost invariably excited by severe exercise, or by jolting, etc. It is very characteristic for hæmaturia to follow renal colic, but colic may occur without hæmaturia. The bleeding rapidly subsides with rest in bed.

Hæmaturia has been so severe as to cause death in those rare cases where a large vessel has been opened by ulceration. Usually coagulation takes place in the ureter, and backward pressure checks the fatal accident.

Frequency of micturition, occurring independent of any abnormal urinary deposit, is suggestive of calculus in the upper part of the ureter or the pelvis, rather than of a stone imbedded in the secreting substance of the kidney. Retraction of the testis is much more obvious in children than adults. After puberty when the testis is heavier, and

with increasing feebleness of the cremaster in advancing years, this sign is less obvious.

A history of the passage of small calculi is the most important fact to be elicited in the history of the patient. With persisting pain and hæmaturia the presumption of stone is an almost certain deduction.

Grating due to multiple calculi may be felt in certain rare cases.

Total suppression of urine, with intense pain shooting through to the front and down to the groin, constantly futile attempts to pass urine, vomiting, headache, giddiness, and restlessness, support the probability of these symptoms being caused by a calculus obstructing the outlet of the only remaining kidney. Prompt operation in such instances may save life, and a case is quoted in which a stone was removed on the fifth day of total suppression with a successful urination.

The shadow photograph by the X-rays has added much precision to the diagnosis, but when negative cannot be implicitly relied upon. Shenton in the Guy's Hospital Reports of last year states that in 28 cases in which the X-rays showed calculi they were found by the surgeon; in 8 cases in which the surgeon found calculi the X-rays failed to show them, and there were 2 cases in which the X-rays had discovered calculi which the surgeon failed to find by operation.

The lecture is concluded by a reference to various conditions liable to be mistaken for renal calculus.

F. G. F.

SURGERY.

UNDER THE CHARGE OF GEORGE E. ARMSTRONG.

Surgical Society of Paris.

Myeloplax tumors:—Are myeloplax tumors more likely to be inflammatory neoplasms than real ones? Delbet believes that actual myeloplax tumors, real myelomas, in which giant cells are the principal elements are benign growths, for which purely local removal is justified. Observations of Chas. Monod, Poncet and his own are in favour of this opinion. The case of Monod treats of a patient, aged 41 years, in whom the lesion was situated in the upper extremity of the tibia; a large groove was made after perforation of the bony shell; the cavity produced in this way did not communicate either with the articulation or with the diaphysis; the cure was complete but with ankylosis of the knee. The radiograph taken a year and a half after the operation shows that the epiphyseal cavity is completely filled. The histological examination of the tumor showed that it was a typical giant-cell sarcoma. Delbet's observation treats of a child of 8 years,

in whom the upper part of the humerus showed a voluminous tumor. The radiograph indicated that the head of the humerus was intact, and the anatomical neck deformed by a large tumor. When brought before the Society, the majority of the members, including Poncet, were in favour of a sarcoma, and advised immediate intervention. Kirmisson, Jalaguier and Broca thought is was an exuberant callus. The child was not operated upon; shortly afterward a typical fracture presented itself in the lower part of the tumor, and this fracture healed quickly with complete rest. The tumor has since largely diminished in size. Poncet's observation treats of a tumor located in the lower extremity of the radius. It was operated upon with success, without a relapse, and the microscopic examination enabled one to state that it was a myeloplax tumor. Berger, Broca, Kirmisson and Monod confirm Delbet's point of view, that myeloplax tumors are most likely inflammatory neoplasms, in which local intervention is justifiable.

2. *External œsophagotomy performed on a child.* (Communication by P. Sebileau).

External œsophagotomy is an operation but seldom performed on a child. Sebileau gives us 4 cases. They all concern the accidental deglutition of a coin, which has always been found to stick on a level with the first stricture of the œsophagus, that is to say, at the beginning of its thoracic part, as is generally reported in published cases. In fact the utmost enlargement that the œsophagus of a child can reach transversely, cannot exceed 25 millimeters.

The coins directed by deglutition always appear with the flat surface antero-posteriorly. The result is that the lesions of the œsophagus are located on each side. Sebileau does not believe in the inflammation or the ulceration of the mucous membrane, with subsequent development of an abscess which may open into the mediastinum.

In one of his cases, he was able to determine the existence of very strong adhesions between the œsophagus and the neighbouring structures, particularly the carotid, which he was unable to completely isolate. Near these adhesions the œsophageal wall had become very thin, being even reduced to the mucous membrane only and was so intimately joined to the surrounding cellular tissue, that sometimes the œsophagus was very difficult to distinguish during the course of the operation. This process of inflammatory reaction without suppuration of the periœsophageal cellular tissue, which has for final result, the adhesion, then the fusion of the œsophagus with the neighbouring tissues, particularly the carotid, demonstrates the advisability and success of the external œsophagotomy, even when performed at

a late period, and absolutely contraindicates the use of von Græfe's coin-catcher for all cases that are not recent. These lesions of periœsophagitis are also interesting inasmuch as they demand a guarded prognosis.

In fact the rucurrent nerve can be found in the very middle of the inflammatory tissue; more or less severe disturbance in the working of the vocal cords shows that it is attacked by neuritis. The functional disturbances seen in children are particularly slight; one does not get the spasms which are observed in an adult when the œsophagus has been irritated. Sebileau points out the uselessness of catheterization of the œsophagus—he reminds us that Segond was obliged to perform external œsophagotomy to extract at the same time the "foreign body" and von Græfe's "coin-catcher," which had become impacted with the foreign body.

On the other hand Sebileau urges the importance of radiography, done immediately before the operation, inasmuch as the foreign body may move further down during the hours preceding the operation.

External œsophagotomy in a child is not a difficult operation, although a delicate one, because of the narrownes of the wound. The one serious difficulty arises from the periœsophgitis. Sebileau advises to begin the incision as low down as possible, descending as far as the interlavicular notch of the sternum, following the anterior edge the cleido-mastoid muscle.

The real danger of the operation is the recurrent nerve. On the cadaver it is almost impossible to wound this nerve because it remains stuck to the trachea; when there is periœsophagitis it does not allow itself to be drawn aside with the trachea, and cannot be found when hidden in the cellular tissue. In spite of the lesions of its wall, it was always possible to suture the œsophagus.

F. M.

Intra-Abdominal Torsion of the Great Omentum.

E. Vignard and Giraudeau. "Intra-Abdominal Torsion of the Great Omentum." *Archives Provinciales de Chirurgie*, Paris.

The authors report fully two cases, one of their own, the other belonging to the service of Prof. Malherbe; then proceed to give a résumé of all the reported cases, 18 in number besides their own, or 20 in all.

The article is well worked out, and deserves reading in the original. We can mention here only the main points. Vignard's case concerns a man, aged 31, who was seized suddenly, without apparent cause, with colicky pains in the right abdomen. There was slight fever, no vomiting; and no bowel obstruction.

A dull mass appeared in the right iliac fossa, and on the 6th day the right scrotal sac became the seat of a painful swelling. The pain became subacute, finally chronic; and a month after the onset he came under Vignard's care. The latter found that the patient had suffered from slight colicky attacks, four or five times a year, since the age of 9; that the right testicle had not descended until the age of 7 or 8; and that he had worn since "early youth" a right hernia truss.

On examination, Vignard found a hard, painful, rather superficial intra-abdominal mass, which could be followed from the costal margin down to the right scrotum. Its upper limits were well-marked, and situated about the superior and external angle of the rectus; its greatest breadth, about the middle, corresponded to that of one's hand, and was half outside, half inside the external border of the rectus. Inferiorly, the mass became smaller, strand-like; disappeared under Poupart's ligament, and reappeared in the inguinal canal, and was finally confounded with the testicle. Its surface was very irregular and lumpy. The diagnosis was that of appendicular trouble with especial involvement of the omentum in the inflammatory mass, and extension of the inflammation to a pre-existing inguinal epiplocele.

Operation revealed a considerable amount of black blood free in the peritoneal cavity. The omentum formed the above-described mass. It was adherent to the abdominal parietes, and infiltrated with blackish blood. The lower end was found to be adherent in the hernial sac. Numerous adhesions to the coils of the small intestine were liberated with difficulty, and finally the whole mass was ligated at the pedicle close to the transverse colon, and removed. The appendix showed no signs of disease save the presence of three small concretions. The omental mass showed at its pedicle two or three tightly drawn spiral turns. Recovery uneventful.

In the case of Malherbe there was a somewhat similar history, and a similarly mistaken diagnosis of appendicitis.

Vignard then proceeds to review all the cases recorded up to the present:—

Historical.—The first case was that of Oberst in 1882; the second that of Demons in 1893; and the majority of the others belong to the last three years.

Aetiology.—"The constant coexistence of a hernia seems to dominate the ætiology of omental torsion." It is noted in every case; and had been always present for a considerable time, but usually reducible.

Antecedents.—In general, there could be found no history of any disease which could have had an influence on the omentum. In most

cases there was no immediate apparent cause. In a few a sudden violent effort seems to have induced the acute trouble.

Pathology.—A hernial sac was always found, and nearly always in it was the lower end of the twisted omentum bound by adhesions. The intestine was never found in the sac. The omental hernia was never found strangulated. The omentum might be twisted at one point; at two different points; or in a complex manner. The omental tissue usually showed chronic or subacute inflammation, with bloody infiltration. In only one case was there a diffuse fibrino-purulent peritonitis. In a majority of the cases, the condition of the appendix was not mentioned.

Symptoms.—Onset usually brusque, violent; only exceptionally was it insidious. The pain, always a prominent symptom, was usually considerable and continuous. Vomiting present in one-third of the cases. The blockage of gas and fæces was complete in several of the cases; partial in others. Temperature was commonly normal; pulse somewhat accelerated.

Objective Signs.—Abdomen usually distended. The hernia in most cases showed evidences of inflammation; painful, hard, and irreducible. In half the cases palpation of the abdomen gave no decided evidences; in the rest a painful mass could be made out; and in a few this could be traced to the hernial sac.

Diagnosis.—This was not once made in all the 20 cases. Practically all the symptoms are common to many abdominal conditions. Appendicitis, intestinal obstruction, strangulated hernia—such were the usual mistakes. Only one sign, when it happens to be present, seems to have real value, viz.: the omental cord or strand traceable from the hernial sac into the abdomen. This, with a low temperature, should assist in excluding appendicitis. The only treatment is immediate operation.

The Light Treatment of Lupus and other Diseases of the Skin.

Malcolm Morris and S. E. Dore. "The Light Treatment in Lupus and Other Diseases of the Skin."—*Practitioner*, April, 1903.

Morris assumes that the treatment of lupus vulgaris and of certain other skin diseases by the Finsen light has passed beyond the experimental stage; and the results quoted, not only by the Copenhagen Institute, but by so many others all over the world, bear out the assumption. We [illegible] Finsen's latest statistics are as follows:—From Nov. 1895, to Jan. 1, man[illegible] the total number of cases of lupus vulgaris treated was 804. Of coli[illegible] 67 cases must be ruled out on account of various interruptions in ing[illegible] treatment. Of the 737 remaining cases, he claims 94 per cent. of

successes; and only 6 per cent. of failures. It must be added that by "successes" is meant really "favourable results," of which, so far as one can see, only 60 to 70 per cent. were actual cures, the remainder being favourably influenced. French results are not quite so good. Malcolm Morris maintains a sound *ex parte* attitude in judging his own work. "Our results," he says, "though not so brilliant as those claimed by Finsen, have been satisfactory in a considerable number of the cases. It is impossible, however, by mere statistics to give an adequate impression of the good effects of the treatment. Many of our cases have been of so severe a type that even the arrest of the progress of the disease has been looked upon as a favourable result. In most of the cases in which we can say that a complete cure has been effected, the affected area has been of slight extent. In none of the extensive cases under our care can we yet claim a complete cure."

Of 65 cases of lupus vulgaris, 11 have remained without relapse for from six months to two years. In 15 cases slight remnants of the disease remain, or slight relapses have occurred from time to time, and the patients are still kept under observation. Eight were discharged with no visible trace of the disease, except in two, on the mucous membrane of the nose; they have not been seen since. Fifteen are still under treatment. Of 14 cases in whom the treatment was not continued, all who remained sufficiently long were improved. In two cases in which ulceration was a marked feature, Finsen's light was useless, and in both the ulcers healed rapidly under the application of the X-rays. In all the cases but one, disease of the mucous membranes, when present, was treated by means of X-rays; and in all, except one in which there was no improvement, with good results. As regards lupus erythematosus, Finsen in 31 cases obtained 11 recoveries, 10 being still under treatment. Leredde and Pautner treated 23 cases, 11 of which were entirely cured and 3 improved; in 3 complete failure. Morris treated 11 cases, with great improvement in 7, but with complete cure in none. Of 29 cases of *alopecia areata*, Finsen had 22 cases of recovery. In 2 cases of Morris's there was failure. In 27 cases of rodent ulcer, Morris had favourable results in 12; but in most of them Finsen light and X-rays were combined. Sufficient time had not elapsed to make it possible to say if recovery was likely to last.

The literature of the subject, Morris remarks, is fast becoming voluminous, but the facts reported require to be carefully sifted, as the observations of workers do not altogether agree, either as to the method of applying the light and the X-rays, or as to the indications for their therapeutic employment."

Morris goes on to compare the various makes of lamps in use in the application of light; and concludes that the original Finsen lamp gives the best results on account of the greater intensity and penetrating power of the concentrated light.

Conditions unfavourable for the treatment he summarizes as follows:—

1. Factors which hinder penetration of the light; *e.g.*, pigmentation, dark complexion, and thick skin; great depth and infiltration of the disease; scarring from previous treatment; great vascularity of the parts.
2. Great extent of the disease.
3. Inaccessible position; *e.g.*, mucous membrane of the nose, etc.

An important point is that which concerns the permanence of results. In this respect the treatment is "at first sight, somewhat disappointing. Relapses frequently occur, and it is necessary to keep the patients under observation for two, three or more years, so that recurrent nodules may be treated as soon as they appear. If this is not done, the disease may fall back to its original state. It is only in slight cases that we can so far claim to have had permanent results, taking two years without recurrence as the standard of permanence. It must, however, be borne in mind that in many of these cases almost every known form of treatment had been tried, and no other method has given such satisfactory results as the light treatment."

E. W. A.

Society Proceedings.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

May, 1, 1903.

H. S. Birkett, M.D., President, in the Chair.

The meeting adjourned.

May, 15, 1903.

J. A. MacDonald, M.D., Vice-President, in the Chair.

The Treatment of Pott's Fracture.

Dr. Archibald presented a case illustrating the treatment of Potts fracture, and gave the following account: This case was admitted to the Royal Victoria Hospital February 25th; at present she walks with ease; and with the exception of a little œdema, there is no deformity. The skiagraphs show the extent of the fracture. The patient fell from a carriage, and when admitted there was slight abduction and eversion of the foot with considerable swelling. The skiagraphs show

the fracture of the fibula with the internal malleolus broken off, and in addition a large wedge-shaped fracture on the fibular side of the tibia. We have here three breaks with some widening of the ankle joint. The disadvantage of the ordinary plaster of Paris treatment is that it does not allow of inspection of the ankle, nor of passive movements nor massage, which now-a-days are looked upon as essential to the treatment of fractures of most joints. I therefore decided to try the treatment advocated by Bardenheuer of Cologne.

This method as used by Bardenheuer in cases of Pott's fracture, and, in fact, of all fractures about the ankle is as follows: A long strip of adhesive plaster is applied to the leg on either side from above the knee passing over the malleoli, and forming a stirrup below the foot. The slack of this stirrup is gathered in very tightly over the sole by a clamp or by thread, the malleoli and the outer edge of the sole being protected by compresses; and to the plaster is attached a weight of from 12 to 16 pounds. The pulley at the foot of the bed is placed towards the median line, so that the force applied brings the foot into a moderate varus position. A second adhesive strap applied round the leg immediately above the inner malleolus, to which is attached a weight of from 4 to 6 pounds, running outwards over the side of the bed, assists in keeping up the varus position. Finally a third strip of adhesive plaster is applied around the fore part of the foot, and the ends brought up and attached to the leg near the knee; this keeps the foot at a right angle, and may also still further accentuate the varus position. The leg is placed in a posterior gutter splint, and the whole may be kept solid upon the bed by lateral sandbags.

The advantages claimed, are that the stirrup with weight exercises a constant lateral compression on the malleoli, thus keeping fragments better in apposition, reducing rapidly the blood effusion in the joint and, therefore, avoiding joint-stiffness. This lateral compression also prevents all pronation and supination movements which are apt to prejudice healing. On the other hand, the flexion movements, necessary to prevent joint-stiffness, can be carried out early, and the leg is constantly open to inspection. The tendency to flat-foot is well obviated by the considerable degree of varus position obtained as above indicated. Bardenheuer, moreover, does not allow the patient to put his weight on the foot before the end of the 5th week.

The method appeals to one especially by its principle of lateral compression, and by its allowing of early light massage and passive movements in flexion and extension. Bardenheuer's results are the best proof of the worth of his claims. Of 106 malleolar fractures, he

obtained 99 per cent of complete cures, (as judged by the exacting conditions of German trade accident insurance societies) in an average duration of 86 days.

The references are: Bardenheuer. Leitfaden der Behandlung v. Frakturen u. Luxationen, 1890. Loew. Ueber Heilungsresultate von Unterschenkelbrüche. Deut. Zeit. f. Chir. Bd 44.

I report this case as I do not know of this method having been tried before in Montreal. The after-treatment of mechano-therapy, as exacted by Bardenheuer for the best results, could not unfortunately be carried out in this case, as she left the clinic between the 3rd and 4th week, the foot being then put in plaster for safety. Nevertheless, the result as observed 3 weeks later, was already decidedly good both as to position and function. Bardenheuer's statistics, I think, may be considered reliable on account of the accuracy demanded by the State, which as you know controls the very exact system of accident insurance.

Skiagraphs taken 10 weeks after the fracture, show nearly the same condition as the fresh ones save for a somewhat better position of the fragments, showing that the callus at that period is not dense enough to throw the ordinary shadow of bone.

Dr. Brown asked if there was any possibility of movement, during sleep, which would displace the foot and disturb the bones, or ligaments.

Dr. Archibald replied that at first sight it would seem possible that movements might occur, but in view of the lateral compression the only movements possible were flexion and extension, which would be carried out in any case, so it was fairly safe. Of course any violence, such as falling out of bed, might be disastrous.

Dr. Mackenzie Forbes showed a case of tendon grafting for a deformity, resulting from anterior poliomyelitis, which he had operated on some two years ago. When shown to the society after the two operations, there was decided improvement, but the patient being lost sight of and the massage, passive movements and electricity neglected, the improvement, which looked so promising then, had not materialized. Dr. Mackenzie proposed to renew the massage, passive movements and electricity, and had great hopes of at least a partially useful limb.

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AN EXPERIMENTAL STUDY ON THE EFFECT OF THE BLOOD-SERUM OF NORMAL AND IMMUNIZED GOATS IN MODIFYING THE PROGRESS OF TUBERCULOUS INFECTION.

BY

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[*From the J. H. R. Molson Laboratories for Pathology.*]

One of the most important subjects, if not indeed the most important, occupying the attention of the experimental investigator in the domain of Medicine at the present time, is the discovery of some curative agent to be employed in that most dread and widespread disease to which human beings are subject—tuberculosis. For the past fifteen years some of the brightest intellects have been at work on this problem with as much zeal and hope,—albeit let us confess with more knowledge —as was ever expended by the investigators of old in the search for the philosopher's stone or the elixir of life. We have, however, reluctantly to admit, that the collective result of these most searching and extensive investigations, while beyond doubt it has increased our knowledge of the nature of the tubercle bacillus and the morbid processes induced by it, has led as yet to but little practical result. The final solution of the problem has hitherto eluded our grasp, and investigator after investigator has, like his prototype the more dramatic alchymist of the dark ages, seen the golden vision fade from his eyes when the prize was thought to be won.

The brilliant success that has crowned the efforts of experimenters to produce an antitoxic serum for diphtheria and hydrophobia, and the somewhat less valuable results that have been attained in tetanus, septicæmia, and typhoid fever, have excited the justifiable hope that a similar remedy might be devised in tuberculosis. Here, however, the

This paper is abstracted in part from a communication read at the meeting of the Royal Society of Canada on May 19th, 1903. The full study will appear in the Transactions in due course.

problem has turned out to be by no means as simple as in the case of the diseases just mentioned. Practical experience has shown that the efficacy of the antitoxic sera hitherto prepared is in direct ratio to the virulence of the diseases in which they are employed. Unlike diphtheria, tuberculosis is not a self-limited disease, nor does it kill by septicæmia. It belongs to that group of diseases to which leprosy, syphilis, and actinomycosis also belong, that have a characteristically slow progression, presenting it is true effects referable to a mild intoxication, but also causing gross organic lesions in various parts. Here it is obvious that a purely antitoxic serum, that is to say, one that merely neutralizes the poisons elaborated by the tubercle bacillus in the course of its growth, is hardly likely to prove effective. Should it be possible to prepare such a serum, and as we shall see it undoubtedly is, the disease would still progress. To be of real value a serum would need to possess germicidal as well as antitoxic properties. Even in the days of the discovery of the diphtheria antitoxin and before (1884), attempts were made to solve the problem and the names of Héricourt and Richet stand out as pioneers in this line of research. Since then the number of workers has increased marvellously, and the work of Koch, Maragliano, Babès, Maffucci and Di Vestea, Behring, Niemann, and on this continent, Trudeau, and DeSchweinitz, is a monument of painstaking research, scientific accuracy, and devotion to truth. No one who has not investigated the subject would credit the enormous amount of labour expended on this one problem.

The subject has been attacked in various ways. One class of investigators has attempted the cure of tuberculosis by means of drugs, a mode which seems of late again to be coming into prominence. A second school, of which Koch has for some years been the leading spirit, has sought to produce immunity and cure the disease by the injections of various toxins derived from the tubercle bacillus or chemical modifications thereof. In this category of remedies belong the various tuberculins, oxytuberculin, tuberculocidin, and antiphthisin. By the injection of these substances it is sought to stimulate the cells of the body to the elaboration of an antitoxic substance in such amount as to neutralize the poisons eliminated by the bacilli. The third series of experimenters has endeavoured by the injection of various extracts of tubercle bacilli, or in some cases the living attenuated germs, to produce immunity in certain of the lower animals, and use the blood serum of animals thus fortified to combat the disease in other individuals. It is with work of this last class alone that this paper will deal.

The first observation, and one that has lead to all the rest, was that of Héricourt and Richet. In 1888 they noted that if a rabbit, which

is very susceptible to this germ, be inoculated with the staphylococcus pyosepticus it may be rendered refractory to its action by intraperitoneal injection of dog's blood, an animal that possesses a natural immunity to the infection. This suggested to their minds that the same thing might hold good in tuberculosis. Without entering into details, the chief conclusions at which they arrived were:—

(1) That in animals the subjects of experimental tuberculosis the injection of dog's blood will arrest the disease provided the germ is not too virulent, or will retard it if it is very virulent.

(2) The serum of a dog injected into a healthy rabbit will prevent the development of experimental tuberculosis subsequently.

(3) The serum of a dog previously inoculated with tuberculosis when injected into rabbits already tuberculized will aggravate the disease.

These observers did not believe that dog's serum possessed a specific curative action in tuberculosis, although it seemed to have a powerful action against some of the effects of the germ and exerted a tonic action on nutrition. The special credit due to Héricourt and Richet lies in the fact that they were the first to see the possibility of producing by the injection of tuberculous virus a specific means of combatting the disease. It was Maragliano who first demonstrated by scientific proofs that a tuberculous antitoxin did exist and applied it to the treatment of human tuberculosis. His results were given to the French Congress of Medicine at Bordeaux in 1895, and his subsequent investigations have proved to be so brilliant and painstaking that a brief reference here will not be out of place. Koch's original tuberculin was prepared by heat so that it did not represent the full toxic properties of the bacillus, for as Auclaire has shown certain volatile poisons are given off in the course of preparation. These substances have been shown by Maragliano to cause convulsions when injected into rabbits. The glycerine also used in the preparation is toxic. Maragliano therefore uses a watery extract of the bacilli. He makes use of two toxins: (*a*) prepared by concentrating a culture of the bacilli over a water bath at 100° C. for three or four days; and (*b*) a culture filtered through a Chamberland filter at the room temperature and concentrated in a vacuum at a temperature less than 30° C. For inoculation purposes he uses three parts of *a* and one of *b*. This mixture is injected into horses beginning with a dose of two milligrammes per kilo. of the body weight and is increased gradually one milligramme a day up to forty or fifty. The injections are stopped if the animals show signs of fever or emaciation until recovery has taken place. The whole process is spread over about six months. Before using the horse serum thus prepared Maragliano waits three or four weeks until the urine is free from toxic

bodies. One c.cm. will counteract the smallest dose of tuberculin that will produce a reaction in a tuberculous man. The serum is said also to possess appreciable germicidal properties. Maragliano has knowledge of 1362 tuberculous patients treated by his serum. Eighty per cent. were benefited by it. The most favourable results were obtained in afebrile cases with localized lesions. In cases of mixed infection the serum was less useful. Maragliano has also shown that the serum of tuberculous patients treated with his serum was two or three times as antitoxic as it was before the injections.

Maffucci and Di Vestea have attempted to attain results by using sheep, which are supposed to be refractory to tuberculosis, employing the methods of Héricourt and Richet and the "mithridatization" method with Behring's antitoxin. They injected both dead and living bacilli into the sheep but found that the serum resulting was neither curative nor prophylactic, but at most caused some retardation in the disease. They found moreover that while the serum was innocuous for guinea-pigs in doses of 2 c.cm. per hundred grammes, one-fifth of a c.cm. in rabbits produced a fatal hæmoglobinuria. When added to a culture of tubercle bacilli in the proportion of four to one some attenuation of the germs was produced.

Niemann has used goats. He injected for some weeks a tuberculin derived from a very virulent stock of bacilli until he was giving fifteen c.cm. Then he injected an alcoholic precipitate from the tuberculin that had been proved to be extremely toxic, beginning at first with twelve to eighteen milligrammes and increasing after a month to half to one gramme. He found that by the use of the antitoxic serum thus prepared he could prolong the disease and claimed to have observed good results in human beings.

The results of DeSchweinitz and Dorset are somewhat similar. They inoculated cows and horses with tuberculin and bacilli and found that this conferred on their sera some powers of retarding the disease in guinea-pigs. The serum of cows inoculated with attenuated bacilli proved to be more potent.

Trudeau and Baldwin were able to produce a marked degree of immunity in rabbits by the injection of attenuated cultures but the serum of such animals did not appear to have gained antitoxic properties. In a large number of experiments with sheep, asses, rabbits and chickens, inoculated with living germs, they thought that the sera thus fortified possessed slight antitoxic properties. Their results were however not very convincing.

From the above mentioned observations it will be gathered that the

results of experiment are by no means uniform and not entirely satisfactory. The best results have been obtained where in addition to the toxins the substance of the germs has been employed as well, but even in this case there is some discrepancy between the different observers. In fact Maragliano is the only one who seems to be at all sanguine as to the value of his serum.

The few observations I have made have been carried out on slightly different lines from those hitherto published in the hope that they would throw some light on a somewhat doubtful question and possibly elicit some new facts. I have employed goats for the purpose, finding them on the whole the most suitable. It used to be thought that goats were absolutely refractory to tuberculosis, but this is certainly not the case. (Colin. Compt. rend. Acad. de Sc., Paris, 1891, CXIII, 219). It is true, however, that in a natural state they rarely suffer from the disease. It is possible to give them the disease by injecting living virulent bacilli in considerable quantities into the circulation, although subcutaneous injection will not suffice. They are therefore relatively immune. They are also hardy animals and stand the various manipulations well. A considerable quantity of serum can be obtained from them which is of good quality and keeps well. Goat serum has the further advantage, as Lépine has shown (Sém. Méd. 1891, XI, 21), that it produces much less hæmolysis when added to human blood than does dog's serum.

It is a well recognized fact that the sera of several normal animals possess what may be called natural antitoxic bodies. Thus horse serum possesses about two or three hundred antitoxic units against the diphtheria germ, and Maragliano states that human serum possesses three to four hundred antitoxic units against the bacillus tuberculosis. It was thought wise therefore to determine first whether normal goat serum could be in any sense considered protective against tuberculosis. Should this prove to be the case then one might try to increase this up to a valuable point.

For the purposes of the experiment it was obviously necessary to obtain the serum without contamination from bacteria and as nearly normal as possible. To attain this the following method was adopted. A large healthy male goat was taken, the hair was removed over the course of the external jugular vein in the neck and the skin washed and sterilized by means of a solution of sublimate (1-1000)). A large sterilized trocar attached by a rubber tube to a sterilized bottle was then inserted into the vein and the blood allowed to flow into the vessel. The serum was allowed to separate in a cold chamber, the clear

portion carefully decanted off, and one-quarter per cent. of chloroform added as a preservative. It was found that the serum thus prepared kept perfectly well for some weeks.

Experiment I.

The first experiment was conducted under the following conditions: Eight guinea-pigs and ten rabbits, presumably in good health, were taken, and their weight and temperature before inoculating were obtained. They were then numbered and kept in separate hutches. On March 13th, 1902, they were inoculated, one half intraperitoneally and the other under the skin of the left leg, with a culture of the bacillus tuberculosis of extremely mild virulence, standardized as follows:

A culture of the bacillus typhi abdominalis taken from the old laboratory stock was inseminated in 1.5 per cent. acid broth and grown in the incubator at the usual temperature for twenty-four hours. The culture obtained was then killed with formalin vapour and used as a standard. A glycerine agar culture of the tubercle bacillus referred to was ground up in a sterile mortar with sterile normal saline solution. This was allowed to stand until the heavier portions had sunk to the bottom. The opalescent supernatant portion was carefully decanted off and diluted with sterile normal salt solution until it reached the same degree of opacity as the standard culture of the B. typhi. Hanging-drops were then examined under the microscope to see that there were no gross masses of bacilli floating about. One cubic centimetre of this material was then used for inoculating. Care was of course taken as far as possible to avoid contamination in the course of the various manipulations, sterilized vessels and instruments being invariably employed.

The animals were shaved at the desired points and the skin sterilized with bichloride, 1-1000. The inoculations were made with an all-metal syringe of five c.c. capacity, previously boiled.

The reason for using a culture of weak virulence to begin with was that guinea-pigs are very susceptible to tuberculosis and it was suspected, from observations already published, that should goat serum possess any antitoxic powers these would be extremely slight.

One half of the animals were inoculated subcutaneously over the abdomen with two c.cm. of normal goat serum every second day. Subsequently the temperatures were taken every day and the weights once a week.

Instead of estimating as others have done the effect of the injections by keeping the animals until they died spontaneously and taking into consideration merely the loss of weight, it was thought advisable as we were dealing with germs of such mild virulence and there was a possi-

bility of the animals recovering, to kill them at stated intervals and determine the amount of tuberculosis by the naked eye and the microscope. By this method an exact appreciation of the state of things could be obtained. By arranging them in pairs according to weight it was moreover possible to compare animals of approximately the same degree of resisting power.

Two guinea-pigs and two rabbits died spontaneously before the conclusion of the experiment, apparently from some gastro-intestinal disturbance. The rest of the pigs were killed after thirty days, and one-half of the remaining rabbits about the same time. The first animals killed presented so little pathological change that it was thought advisable to keep the remaining six for two weeks longer in the hope that the lesions would be more marked. Autopsies were performed at various times with the special object of determining the extent of the dissemination of the tuberculous virus, the effect of the serum injections, if any, and the character of the bacilli of tuberculosis found in the various parts. Portions of the organs were examined microscopically, both by the hæmotoxylin method and the modified Ziehl-Neelsen method for tubercle bacilli. Smears were made from the organs and stained for bacteria. Cultures were also taken from the organs.

Without going into the full details it may be stated that of the guinea-pigs only one (No. 2) gave evidence of any dissemination of the tubercle bacilli to any distance from the site of the original inoculation. It had not received serum. In Nos. 1 and 4 the inguinal glands were affected; the bacilli were discovered in No 1 which had not received serum, but not found in No. 4 which had. In No. 6 which had received serum, the infection was strictly localized to the site of inoculation. In those inoculated in the leg, Nos. 3, 5, 7, and 8, all except one showed enlargement of the inguinal glands. In only one that had not received serum were the bacilli discovered (No. 3). One that had received serum did not develop a local lesion (No. 8).

In the case of the rabbits, only one developed gross tuberculosis (No. 8), and this one had not received serum. This result was in general what one would have expected as rabbits are much more refractory to tuberculosis than are guinea pigs. None of the culture tubes developed the specific bacillus, and when found in smears, they were in a state of extreme fragmentation and degeneration, showing that the infection was an extremely mild one. So far as I could see the inoculations of serum had no effect whatever upon the temperature of the animals receiving it, but the rabbits so treated lost weight rather rapidly, although the pigs were unaffected. This was probably due to interference with the feeding for the injections produced extensive areas of co-

agulation-necrosis in the abdominal wall and in one or two instances there was slight superficial suppuration. Apparently the injections of serum had some slight deterrent effect on the development of the tuberculous lesions, but it was felt that it was unwise to draw any positive conclusions from such a small series of animals, particularly with so mild a germ, so a second experiment was undertaken on similar lines but with several modifications suggested by the experience with the former series.

Experiment II.

Six guinea-pigs and twelve rabbits were placed under exactly the same conditions as to food, exercise, etc., and weighed at intervals of a week until the average normal weight was established. They were then grouped in pairs according to weight. Rectal temperatures were taken daily for ten days to establish a mean normal temperature. Both the weights and the temperatures were found to vary in health between rather wide limits. The average temperature of the pigs was from 102° and 3-10ths to 102° and 8-10ths; that of the rabbits from 102° to 103° and 2-10ths.

All with the exception of two rabbits, which were retained as controls, were inoculated with one c.cm. of an emulsion of a more virulent, though still mild, culture of the tubercle bacillus in normal saline, standardized as before. One half of the animals were given the inoculation in the left leg subcutaneously; the other half intraperitoneally. Three days after inoculation one member of each pair was given a subcutaneous injection of one c.cm. of a fresh supply of normal serum from the same goat, collected with the same precautions as before. This was repeated every third day until the close of the experiment. The reason for reducing the dose was the marked local disturbance caused by the injections in the first series of animals. Two rabbits were also given serum but without tuberculosis. During the course of the investigation daily temperatures were taken and the animals were weighed weekly. A few of the animals died spontaneously before the six weeks allotted to the experiment had elapsed, but the remainder were killed in pairs on the same days. A post-mortem examination was made immediately. In estimating the amount of disease resulting I took into consideration, the dissemination of the disease in the various organs, the amount of tissue destruction, the amount of repair if any, the histological appearance of the lesions, and the morphology of the bacilli found.

It was found in the course of this experiment that after the injection of the bacilli the average temperature of the animals was raised one degree. The average temperature of pigs and rabbits before inoculation

was 102.52°; after, it was 103.41°, in the case of the animals not receiving serum and 103.62°, in those given it. In the control animals that were given serum alone, the temperature in one was only slightly elevated, in the other normal. We may thus conclude that the injection of the serum had no effect on the temperature curve. With regard to the weights it was different. The animals given serum lost 22.27 per cent. of their body weight; those not receiving it lost only 10.45 per cent. As a rule rabbits inoculated with tuberculosis preserve their nutrition surprisingly until towards the last when they go down hill rather rapidly. The injection of the serum, although given in less than half the quantity employed in the first instance, caused considerable local disturbance, and this was aggravated by the animals scratching themselves so that the loss of weight is no doubt to be attributed to the interference with their feeding thus produced.

In comparing the results I found, as before, that guinea-pigs are much more susceptible to tuberculosis than are rabbits, losing weight rapidly from the first and presenting marked lesions when killed. These facts led me to keep the rabbits under observation some three weeks longer, in the hope that thus the resulting disease would be more pronounced. This, however, did not prove to be the case.

After a careful consideration of the extent and nature of the lesions produced in the pigs it could not be said that the injection of the goat serum had the slightest effect in inhibiting the action of the bacilli. The results in the case of the rabbits were rather more promising. The most marked difference was found in rabbits III and XII. Number three which had been given serum presented no positive appearance of tuberculosis, whilst its mate, number twelve, presented caseation at the site of inoculation and tubercles on the peritoneum. On the whole the lesions were slightly more marked in the case of the rabbits not receiving the serum. In corroboration of this finding may be cited the results of the first experiment where the two animals that did develop tuberculosis were those that had not been given serum. It is of course hazardous to draw too positive conclusions from such a small number of animals but it would appear so far as we have gone that normal goat serum does have a slight retarding effect on the progress of tuberculous infection. Whether this action is specific or not is another question. Recent work has shown that the sera of other animals, such as the dog and the horse, as well as normal saline solution, possess similar properties.

Having drawn this conclusion it was thought advisable to attempt to confer upon the serum more definite antitoxic properties. The method adopted was based upon that employed in the production of diphtheria

antitoxin, namely, the introduction of the toxins of the bacillus into the system of an animal until it was immune to the effects, and then using its serum as a curative agent. As has been pointed out most of the work on these lines has proved to be a failure, or at most has had a very limited meed of success. This is possibly due, at least in part, to the fact that the toxins and extracts of the tubercle bacillus used for immunizing purposes have been obtained by heat or by various chemical processes, so that they do not represent the full toxic properties of the bacillus. To obviate this objection Koch's new tuberculin (Bacillen-emulsion) was employed. Perhaps a word or two of explanation as to the nature of this substance may not be out of place at this juncture.

Koch takes a definite weight of tubercle bacilli, filters them from all culture fluid, grinds them up with two hundred parts of 1/50 normal soda solution, and then centrifugates. He then pours off the supernatant fluid, adds weak acid to the residue until only slightly alkaline, and finally dilutes with a standard weak solution of carbolic acid and saline to the extent of one to three thousand. Glycerine is also added, and the final emulsion represents five milligrammes of pulverized bacilli in every cubic centimetre. (Deutsche med. Woch. Nov. 28, 1901.) The injection of this into tuberculous persons brings about a rise of temperature of one and a half to two degrees centigrade. The dose at the first injection is 0.0025 milligramme, rapidly increased two or five-fold until the reaction appears.

To obtain convenient amounts for injection the bacillus emulsion was diluted according to Koch's directions with a standard diluting solution containing 0.8 per cent. sodium chloride and 0.5 per cent. carbolic acid. Three strong healthy goats were subjected to the injection of the bacillus emulsion in gradually increasing amounts, the whole procedure extending over seven months. The reason for spreading the injections over so long a period was that it had been found by Maragliano and others that the animals stand the treatment better and the results are more satisfactory. The injections were given subcutaneously in the neck under strictly aseptic conditions once a week until towards the end of the allotted period. Previously, however, the normal temperature for the goat was ascertained. The amount of the emulsion injected was at first .0025 milligrammes repeated for three weeks and cautiously increased until at the end of three months the goats were receiving 0.015 milligrammes. Subsequently the amount injected was doubled each week, until at the end of the seven months 15 milligrammes was reached. After the first three months also the temperature before inoculation was taken as well as afterwards twice in the twenty-four hours. The normal

temperature of the goat varies between 101 and 103 degrees Fahrenheit. In only one case did the injection of 10 mmg. cause a rise of temperature from 102 to 103 degrees and 3-5ths, but this was only 3-5ths of a degree above the maximum normal variation. The subsequent injection was lessened to 7.5 mmgs. and then again increased. During the last few weeks while such large amounts were being employed the injections were only given once in from ten to fourteen days. After the animals were considered immune to the emulsion a period of three weeks was allowed to elapse, until all excess of the toxin should have been eliminated from the system. One of the goats was then bled from the jugular vein with the same precautions as before adopted, and the serum used for the purposes of the experiment. Tested by the Arloing-Courmont method as to its powers of agglutinating a homogeneous culture of the tubercle bacillus, kindly furnished by Prof. Courmont, it gave a positive reaction in a dilution of one to fifty.

Experiment III.

In carrying out the third experiment I laboured under considerable difficulties. Owing to the great disturbance caused by the injection of the serum in guinea-pigs it was thought better to use rabbits exclusively. Ten rabbits were taken, their temperature was noted daily for a week to establish a normal average, and their weight was recorded. They were then grouped in pairs according to their weight. Four were injected intravenously through the auricular vein; four intraperitoneally; and two in the left leg, with one-half c.cm. of an emulsion of a mild tubercle bacillus in saline solution standardized as before. One member of each pair then received one c.cm. of the fortified goat serum. Unfortunately, after the experiment was well started, rabbit septicæmia broke out in the hutches and about half the animals had to be replaced. At the end of month several of the animals were killed but it was found that the germ was not virulent enough to produce characteristic lesions. The animals were therefore reinoculated with the same quantity of an emulsion made from a mild germ received from Dr. De-Schweinitz of the Bureau of Animal Industry, Washington. In addition two other rabbits were inoculated in the anterior chamber of the eye, affording a convenient means of watching the progress of the tuberculous infection. At the end of another month four rabbits were killed and again no lesions were found. The results of more than two months' work was almost nil, although they served to indicate the effect produced by the antitoxic serum on the healthy organism. The average temperature before inoculation of the rabbits which did not receive serum

was 102.9 degrees and the average weight 1865 grms. After the injection of the tubercle germs the average temperature was 102.7 degrees and the weight 1878 grms. The average temperature before inoculation with tuberculosis of the rabbits that did receive serum was 103.2 degrees and the average weight was 1360 grms; after inoculation with tuberculosis and after receiving antitoxic serum the average temperature was 103.2 degrees and the weight 1675. Thus, as the culture inoculated was inocuous the conclusion is that the antitoxic serum had no effect on the temperature while it apparently stimulated nutrition as the animals receiving it had markedly increased in weight, and in truth appeared in fine condition. Finally as the experiment had to be concluded rather hastily, six guinea-pigs were taken, their normal temperature ascertained, and they were grouped in pairs as before according to weight. Two were inoculated in the left leg with a standardized emulsion of relatively mild bacilli, (1c.cm.) and the remaining four intraperitoneally with the same amount. One member of each pair was given one c.cm. of antitoxic serum subcutaneously every second day. Numbers III and VI, inoculated in the leg, died on the second day of the experiment, and presented no evidences of tuberculosis. Number IV died on the ninth day and its mate was killed on the eleventh. Numbers I and V were killed on the fourteenth day.

The general conclusion based on this experiment was that the antitoxic serum had a distinct effect on the development of the tuberculous process, inasmuch as in those animals that had received the serum the lesions were noticeably less than in the others. This was well exemplified in pigs I and V. In No. I the spleen contained a few minute tubercles as did also the omentum, while in No. V the spleen was much enlarged and apparently filled with tubercles, the liver contained a few definite tubercles, and the great omentum was greatly thickened and converted into a gelatinous firm mass.

With regard to the two rabbits inoculated into the anterior chamber of the eye, in one the disease progressed so rapidly, apparently from secondary infection, that accurate conclusion could not be drawn. The other proved quite satisfactory, however, and the progress of the disease could easily be watched. For about two weeks the disease advanced so that the small caseous mass at first resulting had become enlarged to twice its size. With this there was considerable swelling and injection of the iris with exudation and marked conjunctivitis. Then one c.cm. of serum was given every third day. After this the signs of the acute iritis and conjunctivitis subsided, and during the three weeks following the animal was kept under observation, while the disease un-

doubtedly progressed, and subsidiary tubercles formed, the process appeared to be quite slow and somewhat indolent.

In the case of the guinea-pigs it was found that the injection of the antitoxic serum had no modifying influence on the temperature. From the autopsy findings it would look as if the use of the antitoxic serum had a notable amount of restraining influence upon the dissemination and development of the tuberculous process. It is equally certain that it was not powerful enough to neutralize the infection and prevent its extension. I would hesitate to draw these conclusions from such a small series of animals were it not for the fact that the results are in perfect accord with those of work previously done on analogous lines.

As a result of these experiments as well as those detailed at the beginning of this paper, I think we are justified in concluding that it is possible to prepare a serum that possesses in a notable degree antitoxic properties against tuberculosis. Whether the various sera prepared are of much clinical value is to my mind questionable. Of course after the announcement of any new curative agent, there is always an outcry in its favour, but two or three years later most of these remedies have died a natural death. The only serum that is still being used is that of Maragliano, and he is so enthusiastic in its praise that an institute has been recently established in Italy for the treatment of tuberculosis by his method, to which he supplies serum gratis. Still his reported results, namely sixty per cent. of improvements, are not so much in advance of the figures furnished by any first class sanatorium, which are from forty to sixty per cent. of cures in the early stages. The results are not so good that we ought to pause in our efforts to obtain a yet more powerful serum. It may indeed well be that we have almost reached the limit of potency in the sera prepared by the methods here referred to and Koch is quite possibly right when he says that immunity to the action of the toxic products of the tubercle bacillus does not necessarily mean immunity to tuberculosis. In this case we probably need some serum powerful enough to destroy the tubercle bacillus in the tissues, or one which will stimulate the body cells to elaborate a germicidal substance. It is certain that further advances in this direction will have to be made on the lines of Behring's recent work, who has succeeded in producing immunity in calves by injecting them previously with attenuated germs of human origin. Possibly by a modification of his methods we may be able to elaborate a serum of the potency required. If not, the problem will have to be attacked on quite different lines.

In conclusion I wish to express my thanks to the Hon. E. H. Bronson

of Ottawa, whose public spirit and generosity have made this research possible; to Dr. H. M. Kinghorn of Montreal, now of Saranac Lake, and to Dr. H. Wolferstan Thomas, for cultures supplied, and to Professor Adami for valuable hints.

A complete bibliography and full details of the experiments are appended to the full paper.

A CASE OF GASTRIC SYPHILIS.

BY

H. A. LAFLEUR, M.D.

The following case seems to be worth recording for two reasons:—First, the lesion was observed *intra vitam* in the course of an exploratory laparotomy; and second, the patient made a perfect and lasting recovery, up to the moment of writing, more than a year after the operation.

J. F. L. C., 39 years old, single, first came under observation in June, 1897. In the summer of 1896 he had suffered occasionally from severe pains in the hips and lower extremities, which would last a day and a night and then subside. During the following winter the pains had increased in frequency and severity. He described the pains as aching with occasional twitches, and worse at night, sometimes preventing him from sleeping. The pains were not increased by walking or other exercise, and would sometimes be absent for a week at a time. He had no difficulty in walking, and did not stagger or stumble.

In 1892 he had a sore on the penis, lasting from March 24th to June 1st, and was treated for syphilis by a physician. Very slight, if any, secondary symptoms developed. From that time until the onset of the pains in his limbs he had enjoyed good health. Physical examination, when I first saw him in June, 1897, showed no organic disease of the various organs. Owing to illness I saw him only at long intervals until the end of January, 1898, when he again consulted me for the same pains. These had been very severe, occurring every month, sometimes every two weeks, and had not been relieved by full doses of iodide of potassium. Eventually, however, the pains subsided gradually, and I did not see him again until November 23rd, 1901, when he consulted me for indigestion and diarrhœa. The latter he attributed to a chill he had got while swimming, at the beginning of September, but he had been failing in health during the summer.

The stomach symptoms were flatulency, fulness, and a gnawing

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feeling in the stomach at all times, but worse after taking food. There was no definite pain and his appetite had remained good, though he dreaded eating on account of the uneasy sensations that followed the ingestion of food. He was also nauseated rather often after food and occasionally vomited his meal unchanged, immediately or soon after eating. The diarrhœa was soon controlled, but the other symptoms were not alleviated by restriction of diet, lavage or drugs, and throughout November, December and January he became, if anything, worse. The vomiting particularly became more frequent; nothing seemed to agree with his stomach, but meat seemed to be borne better than any other food. During this time, repeated examinations of the stomach contents were made after a test-meal, and invariably with the same result—an inert gastric juice, containing no hydrochloric acid, no organic acids, and devoid of any digestive action on coagulated albumen. Inflation through the stomach-tube showed a prolapsed and dilated stomach, the greater curvature extending below the level of the navel. The stomach washings contained, besides undigested food, small flakes of muco-pus occasionally flecked with minute bloody points.

As the patient was steadily failing in weight and strength, it was decided, after consultation with Dr. Armstrong, to recommend gastro-enterostomy. While not declining an eventual operation, Mr. C. suggested taking a trip to the West Indies, in the hope that the sea voyage and rest would benefit him. He left in February for Jamaica, and was absent two months, during which time his symptoms remained the same and he continued to lose in weight. On his way back he consulted one of the most prominent clinicians in America, who concurred in the advisability of a gastro-enterostomy. I saw him soon after his return and was shocked at his appearance. He had lost 30 lbs. since the beginning of his illness, and was so weak that the slightest exertion was an effort. There was, however, no distinct cachexia, and the color of the mucous membranes was fairly good. Before finally deciding on operation, the stomach was examined, and to my surprise it was found that on full inflation the greater curvature did not extend beyond a point half-way between the xiphoid cartilage and the navel. This seemed to make a gastro-enterostomy unnecessary, but it was thought advisable nevertheless to make an exploration, find the cause of the trouble, and if possible remedy it. The operation was performed on May 14th by Dr. Armstrong, and the following account is transcribed almost verbatim from the hospital case-record, omitting only minor details of surgical technique:—

Primary incision in mid-line, midway between ensiform and navel. Stomach presented; anterior wall held firmly to anterior abdominal wall by thick band of adhesions, half an inch wide and one and a half inch long. This was divided, clamped and tied. Other denser adhesions were felt below, behind and above, and prevented extrusion of the organ. The pylorus was found quite free. There was no tumour apparent to the touch, but extending from a point about 2½ inches from the pylorus over towards the cardia the stomach-wall felt thicker than natural, and the surface of the organ in this area was characterized by a pinker shade and by scattered shallow puckerings. No glands could be felt in the gastro-hepatic omentum nor in the hilus of the liver, nor again could they be seen in the great omentum. The free edge of the liver presented a few nodules which were scraped and found to contain gritty calcified matter. There being no condition requiring a gastro-enterostomy, it was decided, in view of the abnormal appearance of the anterior wall, to open the stomach and expose the interior. The stomach was opened midway between the lesser and greater curvatures on its anterior aspect, the incision commencing about 2½ inches from the pylorus. This opened the stomach in the thickened area, and the following condition was found: stomach wall thick, about 1 cm., in places 1½ cm.; little bleeding; muscular tissue harder than normal. The everted surface showed complete denudation of the mucosa over an area extending completely around the stomach at the pyloric end of the incision. The same condition extended along the interior and anterior aspect of the stomach toward the cardiac end of the organ fully four inches. Here and there especially toward the margins of the bared surface there were small islets of mucous membrane having a rough cockscomb appearance and a purplish tint. The edges of the ulcerated area were well defined, serpiginious in outline and abrupt. The edge was very slightly heaped up and undermined, and just in the undermining angle was a whitish line. The surface of the ulcerated and denuded area was rather smooth, neither caseous nor necrosing, of a pinkish red color and almost bloodless. In the thickened area some cicatrisation and contraction had occurred producing a certain degree of hour-glass contracture two or three inches from the pylorus. A slice of mucous membrane, a section through the muscular wall and mucosa, and a snipping from the edge of the ulcer were taken for microscopic examination. After extending the wound to give sufficient space, the exuberant edges of the ulcer were pared, the base was curetted, and the thermo-cautery lightly applied to as much of the ulcerated surface as could be reached, the very slight bleeding following curettage being easily checked by the same means. The gastric and

abdominal wounds were then closed by suture. The subsequent course of the patient's illness was quite uneventful. There was no recurrence of vomiting or gastric distress, and when he left the hospital on July 3rd, he was taking a full and varied diet without the slightest discomfort, and gaining weight rapidly. Antisyphilitic treatment was commenced after leaving the hospital and was continued with intermissions through the summer.

The examinations of the tissues removed at the time of the operation were made by Dr. P. G. Woolley, who reported as follows:—The tissue from the base suggested malignancy, for there were small masses of epithelial cells surrounded by a fibrous stroma. But the edges of the ulcer were simply fibrous tissue and muscle, the former in excess, and there was no marked infiltration. The base was markedly inflammatory, not malignant.

The diagnosis of syphilitic ulceration of the stomach is not one that should be made without careful consideration or without excluding beyond a doubt the possibility of the more common forms of solution of continuity, for gastric syphilis is admittedly a rare lesion, and I am quite prepared to admit that the burden of proof still lies with me. Carcinoma, which was at one time suspected, may be at once dismissed. It is not so easy, however, to say unhesitatingly that it was not an *ulcus simplex* of large dimensions, such as have been recorded in the literature from time to time. I would attach some weight to the facts that the patient had not been a chronic dyspeptic, and that anacidity and not hyperacidity existed from the onset of the illness. But the chief argument is drawn from the anatomical character of the lesion. Both Dr. Armstrong, who has had a very considerable experience in the surgical treatment of gastric ulcer, and myself remarked at the time of the operation on the unusual character of the lesion—the soft, redundant, somewhat overhanging borders, the dry and almost bloodless base, and the long tag-like adhesions on the external surface of the stomach—forming a picture quite unlike that seen in simple ulcer.

Microscopically, the lesion was the exact counterpart, save in dimensions, of that described and figured by Dr. Flexner in Vol. XIII of the Transactions of the Association of American Physicians as one of syphilitic ulceration. The histological examination in the present case was necessarily incomplete, only small fragments of tissue being available for microscopic study. It is suggestive, however, that the same masses of epithelial cells surrounded by a fibrous stroma described by Flexner in his case were found by Dr. Woolley in the tissue from the base of the ulcer. As regards evidence of syphilis in the other organs, it is

probably not unfair to assume that the nodules in the liver containing gritty calcified material were the remains of a former gummatous infiltration of that organ. The clinical evidence of an antecedent luetic infection is certainly indisputable.

GIANT-CELLED SARCOMA OF LOWER JAW. RESECTION WITH PROSTHETIC USE OF SILVER WIRE.

BY

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E. F., aet 12. Admitted May 7th, 1903; complaining of a lump under the tongue.

History.—Five years ago the child fell on her chin against a chair, cutting the skin, but without sustaining any further injury so far as could be ascertained. Three years ago a small purple-colored lump made its appearance at the junction of the lower lip with the alveolar border of the jaw and exactly in the middle line. It was not accompanied by pain; nor was there any toothache. Two years ago the growth had attained the size of a walnut, and protruded above the lip. At this time her doctor operated, removing the growth under ether. He told her relatives that it was connected with the bone, which he scraped. The wound was packed with gauze, and was dressed daily for three months, when it finally healed. At the dressings no pus or dead bone was ever seen.

She remained well up to three weeks ago, when it was observed that a lump was forming a little to the left of the former swelling. Since then this lump has grown rapidly to about twice the size of that first noticed. The growth has never caused any pain; nor has it ever been tender on pressure. The child has never had a serious illness. The family history is negative.

Present Condition.—A well nourished girl, with good color; all her organs healthy; the only lesion found is the jaw tumor.

Condition of Jaw and Mouth.—There is visible externally a slight bulging of the chin just to the left of the middle line, extending along the bone for about an inch. The skin over it is normal. Inside the lip, the swelling is seen to occupy the alveolar border, and extends from the space between the first bicuspid and the canine tooth on the right side to the first molar on the left. it is not so prominent as to protrude the lip. The four lower incisors are absent, having been removed at the first operation. The mucosa covering the growth seems normal. The swelling feels soft, yet elastic. It has a bluish look, but is not

compressible; nowhere does it feel bony, and palpation causes no pain The root of the left canine is slightly exposed; but probing discovers no dead bone.

It is impossible by palpation to assure oneself as to whether the growth involves the centre of the bone, or only the periosteum. Although on the left side of the chin, the bulging seems to involve both alveolar border and body of the jaw, the inner surface, towards the mouth cavity of the bone, is plainly not abnormal. No egg-shell crackling can be made out. One minute nodule is felt in the left submaxillary region, suggestive of an enlarged gland; but it is so small as to be uncertain.

A clipping removed from the growth and examined microscopically confirmed the diagnosis of sarcoma, and afforded the further information that it was of the myeloid variety.

In the consideration of this case, two points appealed to me as being of especial interest; first, the question of the degree of malignancy of the giant-celled sarcoma, with the corollary of the extent of the operation to be undertaken; second, the question of the deformity and the loss of function entailed by resection of the lower jaw, and the prosthetic work necessary to obviate these.

While, in the minds of most surgeons, to name the name of sarcoma—whether, spindle, round, or giant-celled,—has been sufficient to indicate the most radical operation, there has been growing up lately a tendency towards more conservative treatment. I speak here, in the case of jaw tumors, not of the sarcoma epulis, which has never been considered materially malignant, but of the endosteal growths. Endosteal sarcomata are in the great majority of cases giant-celled in type, with a greater or less admixture of spindle or round cells. It seems certain that, clinically, these are the most benign of all sarcomata. Nélaton used to deny even that they were real tumors, and called them hypertrophies of the bone-marrow, but doubtless this was going much too far.

Nevertheless, metastases from myeloid sarcomata are certainly rare, and recurrences after wide removal very infrequent. While we still know practically nothing as to the essential nature and significance of giant-cells, the belief is probably widespread that the more purely giant-celled a sarcoma is, the less is its malignancy.

In 1889, Fedor Krause,[1] reported from v. Volkmann's clinic, 4 cases of endosteal jaw sarcoma treated only by local curetting and chiselling. In all cure resulted, although in one there were 6 recurrences. In another case affecting the tibia cure was permanent 2¾ years after operation. In a late number of the Johns Hopkins Bulletin, Bloodgood[2]

takes up the question, and reports upon 7 giant-celled sarcomata from Halstead's clinic treated by more or less conservative operations, all with good results. He reviews the literature of the question in Progressive Medicine, Dec. 1902, page 150[3], and concludes that it is justifiable to attempt to remove myeloid sarcomata first by curetting and chiselling alone; if recurrence appears, by resection; and by amputation only when a very great amount of bone is involved, or when the surrounding soft parts are infiltrated.

In view of this evident tendency towards conservatism, and because of the considerable mutilation involved in a wide resection of the lower jaw, one might have entertained, in the case here reported, the idea of a purely local scraping and chiselling operation, with conservation of a posterior bridge of apparently healthy bone. Nevertheless the contraindications seemed sufficiently definite. The present growth was a recurrence; it had increased rapidly in size; it already involved a considerable portion of the jaw; if originally endosteal, it had by now certainly broken through the bone and invaded the gum and soft parts of the chin; and, in the microscopical section of the clipping the sarcoma was far from being of the pure giant-cell type. For these reasons a wide resection was planned. There came, in the second place, the question of how to obviate the deformity and loss of function necessarily resulting.

Operation, May 15th, under ether.—Resection in the usual way through an incision running along under surface of jaw below the chin, the first molar on each side being extracted and the bone sawn through at those points. The right molar would have been saved, had it not been completely carious; soft parts dissected wide of the bone both in front of and behind the chin. A hole was then drilled through either stump; and a length of strong silver wire, heavy enough to retain firmly any shape given to it, yet light enough to be easily moulded with the hands, was passed through the hole in the left stump forming a loop. The two free ends were brought over to the right side, and the wire was worked into an anterior curve approximating the contour of the chin, the two strands being fixed at a distance of about $\frac{3}{4}$ of an inch from each other in the vertical direction. I may say here, however, that this distance became later, whether by pressure of the stumps, or by manipulations in the later part of the operation, somewhat reduced.

One free end of the wire was then passed through the hole in the right stump from inside to outside, cut off short, and the end clinched with hammer into the compact bone. The other free end, cut to the proper length, was shoved about half an inch into the spongiosa. It was now found that the loop in the right stump allowed some sliding

in the transverse direction; it was therefore clamped down close to the raw edge of the stump, forming a sort of O. The mucous membrane of the lip was then united by interrupted catgut sutures to that of the floor of the mouth without undue tension, thus covering in the silver wire from the oral cavity. The bunch of chin muscles, mylo-hyoid, genio-hyoid, and genio-hyo-glossus, was sutured in one mass with two or three chromicized catgut sutures to the base of the tongue. Finally, the skin wound was sutured, leaving gauze drainage at either angle.

The after-course may be summarized in a few words. The patient was allowed to swallow a little water 6 hours after operation, which she did without difficulty. The control of the tongue, it may be said in passing, was very satisfactory from the first. Ordinarily in extensive chin resections, it must be carefully held forward with a silk ligature through the tip for several days. In this case the silk ligature was removed on the morning following as being evidently unneeded; and no doubt the explanation lies in the fact that, by the insertion of the wire and by the suture of the mucous membrane, the normal relations of tongue fixation were largely restored. Three or four days after operation, it was found that all the catgut sutures uniting the mucous membrane on the left side of the mouth had given way; whether from infection or from a too early use of the tongue it is hard to say. This left a large cavity towards the skin wound, which has since granulated in satisfactorily. The retention of the stumps is almost perfect. On the left side the one remaining molar articulates exactly with the upper one; on the right side, it is drawn inwards so as to articulate in only half its surface with the corresponding upper one. The movements of the stumps are good; but the patient is still unable, or perhaps unwilling, to bite anything with the two teeth left.

The chin is well preserved; but the lip shows a slight tendency to be drawn inwards, though not enough to be deforming. The wire seemed, until several days ago, to have healed in perfectly; but at that time (about June 11th), there developed at the right angle of the skin incision, previously well healed, a sinus, which does not communciate with the mouth. On probing this sinus, the bare silver wire can be felt; and the suspicion is natural, that the end of the wire shoved into the spongiosa of the bone may have loosened and be now inducing local suppuration. Even if such be the case, one need hardly doubt but that a small secondary operation to secure this wire-end more firmly in the bone will succeed in closing the sinus.

Description of Tumor:—The jaw being sawn through from before backwards about the middle of the body, it is seen that the bulk of the tumor occupies the medulla of the bone; and there can be no doubt

but that it was of endosteal origin. The anterior shell of the body is perforated very extensively by the neoplasm, which, invading the soft parts, produced the swelling seen clinically. Posteriorly the layer of compact bone is not materially destroyed. The growth is reddish and friable; and contains one cyst, about the size of a small marble, which contained slightly hæmorrhagic fluid. The soft tissues are apparently dissected wide of the growth. No glands are to be found.

The full microscopic examination by Dr. Keenan was as follows:—

Sections of tumor show tissue to be that of a typical myeloid sarcoma. The cells are of two classes; one, large irregular multinucleated cells; one, small mono-nucleated round or fusiform cells. The multinucleated cells contain from 3 to 10 round vesicular nuclei, and occasionally nucleoli; nuclei are scattered irregularly through cell protoplasm; there is a very small amount of interstital substance. Blood vessels are fairly numerous with thin but definite walls.

In planning the prosthetic work in this case, two main points had to be considered. First, the age of the patient. Being 12 years old, she has as yet only two molars. In her 18th year, or probably a little before, she will get her 3rd molar; and still later her wisdom tooth. Second, the extent of the resection planned, which was to leave her with, at present, only one molar in either stump. Probably the best prosthetic method is that which holds the stumps in position by a temporary splint, whether wire or interdental, during healing, and inserts thereupon a permanent dental appartus with teeth. In the present case, this was rendered impossible, or at least very difficult, by the fact that not enough teeth were left to which to attach a permanent apparatus. Anything permanent would be better applied later, when the patient had acquired the rest of her second teeth. For the intervening years, some kind of support was needed, which would keep the stumps from being pulled inwards and preserve the chin contour. The idea of silver wire, to be used as above described, occurred to me; and on looking through the literature, I found some analogues and two precedents.

C. Hofmann[5] reports in 1900, his use of silver wire, which healed in permanently, in a large defect of the lower jaw following osteomyelitis. The result was excellent.

Pearce Gould[6] in 1897, reported a case of the use of silver wire. The wire later "became shifted, and appeared through the cheek, and the man removed it himself." The advantages of silver wire are evident; owing probably to its antiseptic action, it is able, as has been demonstrated, to heal in even in septic wounds. It is easily handled; it is adaptable to large defects, and is easily inserted. In all that concerns the dentistry of this case, I must acknowledge here my great indebted-

ness to Dr. E. B. Ibbotson, dentist of the hospital, who has freely aided me with his advice.

Our plans for the patient are to provide her later with a light removable apparatus to hold out the chin and to prevent undue scar contraction; and still later, when she has attained full growth with three solid teeth in either jaw to insert a permanent plate with teeth.

So far, apart from the development of the small sinus, which I expect to heal ultimately without trouble, the result has been excellent.

The X-ray picture taken with the plate under the chin, and the tube a little in front of the forehead showed the extent of bone destruction.

Inasmuch as the chief *raison-d'être* of this article is to give a preliminary report of an attempt at immediate lower-jaw prosthesis, it may not be uninteresting at this point to review briefly the literature of the subject in so far as it has been found accessible. Unfortunately much of it is contained in foreign dental journals not available here for reference. This kind of work seems upon the whole to have been decidedly neglected until just lately in England and America as compared with France and Germany.

Martin,[4] of Lyons, seems to have been the first (1889) to write at any length upon the subject. I have not been able to obtain his work, but his method is briefly described in an extensive article by Hahl [5] in Langenbeck's Archiv, in which the French and German methods are contrasted.

The Lyons school, represented by the work of Ollier and Martin, fasten in during the operation an apparatus of hard rubber corresponding exactly to the size of the portion of jaw removed. After weeks or months this is replaced by a smaller permanent appliance.

The Berlin method, worked out by Von Bergmann and Sauer, fills in the defect only after healing, but before scar contraction sets in; and endeavours, especially in lower-jaw resections, only to keep the stumps in normal condition during healing.

Finally, Gluck and Warnekros modify the Ollier-Martin method by putting in a permanent prosthetic appliance at operation; implanting it, as it were, and expecting it to heal in.

Martin's "appareil primitif" was made of hard rubber, and was secured by pegs or screws to the stumps, or by clasps to the teeth where any teeth were left. It was built in two parts, one corresponding to the body of the jaw, the other to the alveolar process; and the lower portion was again made in two halves to facilitate removal. It was supplied with a system of canals and with a tube for purposes of cleansing.

Of the cases reported by Martin, half healed *per primam*; while in the rest the apparatus seemed to cause considerable inflammatory trouble, with a good deal of pain.

Gluck and Warnekros believed they obviated these dangers by using metal instead of rubber; by a more perfect fixation and a more perfect asepsis.

Hahl, from whom I quote the above details, proceeds, without discussion, to describe the Von Bergmann-Sauer method, as practised in Berlin for the previous decade (1887-1897). From an experience of 45 lower and 81 upper jaw resections, all treated prosthetically after operation, his conclusions may well be said to command attention.

In the case of the lower-jaw Hahl sets up 3 groups, according to the location and extent of the resection.

I. The chin is removed. Here a wire splint is intercalated during healing. If two or three good teeth remain, the wire is wound round them on either side. If no teeth remain on one side, the wire, fork-shaped, is shoved into the spongiosa on that side. The wire is shaped before operation; and the material used is either gold, aluminium-bronze, or nickeled steel.

Where all the teeth were lacking, Hahl used either Bönnecken's wire-bridge, fork-shaped at either end in such a way as to embrace the stumps, or else a solid metal spindle-shaped body large enough to support the lip, and provided with two sharp points at each end which were shoved into the bone and fastened by wire ligatures. In all these cases, as soon as healing was complete, the wire splint was removed, and a broad hard-rubber splint, with wing-like processes towards the jaw stumps, covered with black gutta-percha and attached to an upper plate by a spiral spring, was immediately inserted for permanent use.

II. Cases where a portion of one lateral half of the jaw was removed, the chin remaining intact: Here a sort of stick, made of gold or of aluminium-bronze, of the size of a lead pencil, was inserted in the usual way by means of sharp forked ends into the spongiosa, and made fast by wire ligatures. This was left to heal in permanently.

III. This group comprised cases in which the whole of one-half of the jaw was removed. In these Sauer's device of the "shiefe ebene" or slant splint was used. This is a splint attached at an incline to the outside of the teeth of the sound side, in such a way that, when the mouth closed, the upper teeth, impinging on the splint, forced the lower jaw outwards. It was inserted at operation and fulfilled the great indication in these cases, that of preventing the in-falling of the sound half of the jaw. This was worn by the patient until the permanent plate was inserted, or longer, if there remained any tendency towards in-falling of the sound side. The details as to just how the permanent plates in these cases are fastened in, which is after all, a question of pure dentistry, are very incompletely given.

Various other surgeons have devised modifications of the above-de-

scribed principles, mainly in the direction of temporary supports during healing. McBurney[7] used in 3 cases of excision of one-half of the jaw, first, an interdental splint; then, when complete cicatrization had occurred, a spiral spring, which, fastened to the cuspid of the lower jaw, and taking its support from an upper molar on the other side, held the lower jaw in position until the muscles of that side were sufficiently educated; finally, replacing this, a permanent rubber plate with "plumper." The result was excellent in all.

Sir Wm. Stokes[8] devised a splint of wire, so twisted as to present two arms at either end, which embraced the jaw-stumps and held them apart. This had the advantage over the rubber interdental splint, that it allowed of easy irrigation, and that it did not have to be removed for feeding.

Pearce Gould,[6] after failing in one case to get silver wire to heal in, tried in two other cases a steel bar with reverse screws. In one, the bar healed in well; in the other it worked loose and had to be removed.

Stanley Boyd had used a knitting-needle, which became displaced and had also to be removed.

Cryer,[9] of Philadelphia, reports his prosthetic work in a case of J. Wm. White's. His technique seems to have been practically the same as that of Martin above described:—a temporary vulcanite splint, followed in 6 weeks by a permanent one, carrying 8 teeth, and attached by wire to the capped teeth (two last molars) remaining on either side.

Berndt[10] reports 4 cases of resection of one half of the jaw, in which he inserted at, or soon after operation, a celluloid pessary-ring, moulded so as to approximate the shape of the portion removed. Although sinuses gave trouble for some time, the celluloid ultimatly healed in permanently in all four cases. Deformity was obviated, and the function of the remaining side was preserved.

Bardenheuer[11] and others, disbelieving in foreign bodies in the mouth for prosthesis, have devised, where the defect was not too great, various plastic operations to bridge the gap with bone. Some of these have been successful, but their usefulness is evidently limited to small defects.

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VALEDICTORY ADDRESS.

FACULTY OF MEDICINE, McGILL UNIVERSITY, 12TH JUNE, 1903.

BY

FRANK BULLER, M.D.

Perhaps it never occurs to an audience such as here assembled, the extraordinary difficulties encountered by the annual victim of a time-worn custom such as I am here to represent. It is of course expected of every Valedictorian that his utterances shall be crisp, sparkling, and original; that he shall promulgate ideas and pour out a deluge of wisdom and good counsel the like of which never before emanated from the neurons of a cerebral cortex. If he does not accomplish this, and more also, he feels somewhere deep down in the innermost recesses of his mental organism, that his lofty mission has proved a failure, that he has blighted the expectation of his colleagues, and cast a shadow over the glowing enthusiasm of the bright young minds, now for the first time emancipated from the leading strings of an elaborate curriculum, and the dignified restraint of a venerable collegiate institution. Where, may I ask, shall you find crispness at a season when all are experiencing the depression of protracted toil, to which is superadded the enervating qualities of approaching summer? Whence shall there come aught that is sparkling, through the clouds and mists of labor in the confined atmosphere of a city, surcharged with the grimy elements of soft coal, bush fires, and dessicated street sweepings? Where shall you seek for originality in a field of thought which has been ransacked for a century or more by thousands in pursuit of the same objects, —the production of an instructive and entertaining address, about nothing in particular?

Fortunately conditions change with the evolution of knowledge, else there would be nothing to relieve the dull monotony of tales a hundred times thrice told. Fortunately too, there is an ever-changing kaliedoscope of thoughts and ideas which comes to yield something of its own to each revolving scene in the panorama of life.

Thirty-three years ago when I was a post-graduate student in Berlin I remember well the remark of a somewhat cynical elderly Scotchman, engaged like myself in the diligent search for the knowledge which grows from more to more, discussing one day the things we thought we had learned, and the things we might still have to learn. He said to me, "you seem to think you know a good deal about medicine and surgery in general and ophthalmic surgery in particular, but you may take my word for it, your ideas of things ten or twenty years from now will have entirely changed. The things you know, or think you know now,

will be supplanted by other ideas, and other knowledge, and you will look back to this present time as a period of darkness and ignorance." Our brief acquaintance was of the " ships that pass in the night " sort, and I know not whence he came or whither he went, but his words were prophetic; his predictions I have found to be true. In these thirty odd years everything seems to have changed, with the exception of a few general principles, such as we all learn during the period of student life.

Thoughts, ideas, methods,—all have undergone transformation. Good old-fashioned, vile tasting rhubarb and jalap have been replaced by sugar-coated confections equally efficient, and whole regiments of chemical formulae I once had on the tip of my tongue,—all these things and many more have passed into oblivion. And believe me, I am well within the truth in telling you that, so far as I can compare my working knowledge of to-day with that of the past, in the days of this transient friendship, there is very little not so utterly transformed that I might be a different person altogether having but a dim consciousness of my former self. In all this, the change has been so gradual that one recognises no difference from year to year and only comes to understand it all by a retrospect extending away back to an almost forgotten shadow-land.

I do not imagine there is anything peculiar or unusual in this, but rather that it is the common experience of all who have similar opportunity to observe the progressive alterations in all things which go to make up the sum total of an active, or, to use the cant phrase in vogue just now, a strenuous life. What food for thought there is in that small word ! Some one has said it is one half an if, and three-fourths a lie. A sad dog he must have been, to speak thus of the word which represents all that we know of happiness in the present, of hope for the future. More than this it represents the culmination of Divine Power, the sole purpose of the universe. It is the medium through which all knowledge is acquired and transmitted, the connecting link between the material and the spiritual, for those who believe the present is but a preperation for another existence. To the pure materialist it is the beginning and the end of all things.

Apart from all metaphysical considerations, are we not justified in assuming that the highest destiny of matter is the evolution of life ? So far as we know the materials which are used to make up a world in any part of the universe, are always the same. We know enough of our own solar system to justify the belief that our planet, the Earth, is the only portion of this stupendous machine thoroughly well adapted for the support of life in the infinite variety known to have existed

here for countless ages; though only comparatively a recent development in its higher forms. No one can deny, and indeed there is no reasonable doubt, that the same or very similar conditions prevail in other systems, perhaps millions of systems greater than ours. We recognise here something which it is easy to believe displays the very essence of, and reveals the matchless work of a Divine Power in preparing an otherwise useless material for this its highest known function—to wit, the development and perpetuation of life.

Science has evolved wonderful results in utilising the various forces of nature for the benefit of the race, but we seem no nearer a solution of the mystery of life itself than our forefathers have been. No one as yet can explain the transformation of inert material into a living, sentient organism, nor have we anywhere indisputable evidence that this is not the very highest expression of the will and purpose of an over-ruling power; whoever then contributes most to the perfection of this purpose may reasonably claim to stand in closest relation to the Giver of Life. It is in accordance with the known laws of life that all lower organisms are more or less subservient and contributory to the higher. This is a cogent reason for assuming that the higher forms of life represent the most perfect and complete result of Nature's efforts.

If this be true, those who are specially qualified by natural gifts, and careful training, to foster and care for the higher forms of life, are surely nearer to the heart of Nature than any others. I am confident on one here will deny that this is the special function of the Medical Profession. A consciousness of this should be a never-ending source of satisfaction to every worthy member of the profession. This is the high office to which you, Gentlemen of the Graduating Class have now attained. This is the great distinction that you Gentlemen of the Junior Classes are seeking to acquire. For the sake of your Alma Mater, of the friends you love best, of all that makes life worth living, see that you bear the honors with all the dignity and pride of real merit, bold in the consciousness of unalterable integrity. Then, and then only, can you be sure of having friends and companions among the best in the land.

If you show me a few minutes indulgence, I shall venture now to exercise one of the privileges belonging to the part I have the honor of acting in this afternoon's programme. Briefly then, I purpose giving the usual few words of advice, directed chiefly to those of you who are about to leave us carrying with you tangible evidence of our appreciation as well as the intangible bond of sympathy, which forever

unites those who have long worked in harmony together, and still continue to cherish the same pursuits.

In the first place let no one imagine he has completed his studies when he has become possessed of a college diploma. The first thing to do, if you have not already anticipated the suggestion, is to obtain the code of medical ethics and make yourselves thoroughly familiar with its contents. You will find nothing more helpful than this from start to finish. Amongst other things in this little booklet, you will note the statement that, "a regular medical education furnishes the only presumptive evidence of professional abilities and requirements, and ought to be the only acknowledged right of an individual to the exercise and honours of his profession." Note the phrase, "only presumptive evidence of professional abilities and requirements." After all then, having spent several years in arduous study,—though pleasant and profitable I hope they have been—after having successfully run the gauntlet of half a hundred examiners, the most you can claim is presumptive evidence that you are qualified to practice your profession. Supposing you have done all this and also fulfilled all the requirements to legalize your pretentions, can you all conscientiously affirm, that this is sufficient? It is not a fact that some, if not all of you, would be the better of further study in the practical school of junior hospital appointments? Speaking with the authority of long experience I may say I would have a poor opinion of any recent graduate who would answer this question in the negative. Granted you will say, but how are we all to obtain hospital appointments? My answer is, there are many hospitals throughout the country that would be glad to obtain the services of young men who really desire to do good work, and are willing to serve another year or two without pecuniary reward, just for the sake of the inestimable advantage this sort of training affords. It is true that such appointments in large cities for the most part only go to those who have shown more than average ability as students. In some respects this is an unfortunate state of things, but I do not see just how it can be remedied. Certainly the less successful students are the ones most in need of further opportunities for practical study.

How shall we find a remedy? For the present I have only one to suggest. The world is wide and hospitals are many. Let every recent graduate make up his mind he must obtain some sort of appointment that will give him the privilege of doing hospital service. Of course there are not enough vacancies in the resident staffs of our own hospitals to give all the graduates of each year such positions, but I believe many could readily obtain similar positions in other cities in

Canada, in the United States, and elsewhere. Would it not be wise then to make applications immediately wherever there seems a chance of obtaining an appointment ? Some of us who have been your teachers might be of service in securing such appointments and I speak now for the Faculty, when I say that every one of our graduates can depend upon our cordial support in matters of this kind. How could it be otherwise since our strongest desire is to secure for all our graduates the highest honors and the foremost places in the ranks of the profession ?

Though all may not be in a position to undertake this additional course of training, there is no doubt that many more would do so could they be brought to realise the enormous advantages to be gained thereby. Of this I am certain, the young practitioner who has placed the coping stone of hospital experience on the mental edifice of four years study, finally goes out into the world in every way better equipped than those whose foundations may be all right, but whose superstructures have never been properly and thoroughly completed. Remember that where there is a will there is a way. Some of you will obtain these positions immediately and without difficulty, and with these as with many of their predecessors there may be a stumbling block in the well known and recognised fact in all the affairs of men, that things easily obtained are often not valued as they should be, and for this very reason the best opportunities may be wasted if not entirely thrown away. Let me tell you I have seen many young men possessing the very best appointments, with ample opportunity of learning in every department of medicine and surgery, simply settle down to a life of ease and enjoyment, actually thinking more of trumpery amusement than they do of filling in every precious hour, every golden minute, with the glorious work of storing the experience of a lifetime into a mind and body still young and vigorous enough to make the very best of every capacity, of every attainment.

If the contrary course be pursued, if there be an earnest desire to gather up, not only the whole loaves, but every crumb of experience that life within the walls of the hospital affords, is it not equivalent to putting an old head on young shoulders; and is it not true that those of you who have achieved this may go forth ready to conquer the world, or at least so much of it as comes legitimately within the sphere of your action ?

This is the very growing time of the young physician's life, the season is short; let him have a care that no time be lost, that the seeds be sown early in a well cultured soil, lest the growth be stunted and the harvest immature. Consider how it is with us here in the

north, and how it would be with June and July taken out of the calendar; one such year would mean incalculable loss; two or three in succession, starvation, ruin, and utter desolation. With only one season, which never returns, would it not be an act of madness on the part of him who should waste the June and July of his life in idleness and frivolity? Yet this very thing has happened time and again to my certain knowledge, and may still recur, should this my friendly admonition go unheeded. I do not say there should be no relaxation from duty, no time given to healthy recreation; on the contrary, within certain limits the business of pleasure may be a necessity; but I do claim that the months or years of extra training I am advocating should be as carefully regulated as they would be by one who undertakes a course of physical training for the purpose of winning a prize only attainable by the highest development of skill and endurance. And *such* a paltry prize compared with the one you are striving for!

In order that the fullest advantage may be derived from hospital work, it does seem to me things might be arranged differently. I have always and everywhere observed a tendency in young men to unduly exalt the department, or particular work in hospital, they happened to have. There are sometimes even petty jealousies between those doing work in the different departments. No more deplorable mistake can be made than this. In such work there is no room for jealousy or the sort of competition which so often tends to make life mean and sordid. Here the only competition should be to see who can do the most in advancing his own knowledge and that of all who are associated with him. Here at least is a case in which the benefits to be derived from co-operation are mutual and reciprocal.

Some of you will seek for further training abroad. Those who have this in view may be divided into three classes: first, those who intend spending one or more years in purely scientific work. These are few in number, but the country has need of them and they should be encouraged in every possible way. The second are more numerous and will go across the Atlantic with the intention of seeing something of the hospital work and general teaching on the other side. This too shows a laudable and enterprising spirit. I cannot urge too strongly upon these the paramount importance of obtaining some sort of hospital appointment. In this way they will learn much more than as mere onlookers, who are never brought into the inner circle, and never in a position to follow all the details of any case, however, interesting or instructive. The itinerant may get a smatterng of many things, but he comes home without a substantial working knowledge of anything. In order to obtain hospital appointments it may be necessary to pass one or more of the old country examinations. This of

course involves some loss of time, but it may be well worth the extra time and trouble. I can speak from experience in this too, for I held various hospital appointments for six years in Europe, and was only able to obtain them by having an English qualification.

Those who elect to follow the clinical teaching on the Continent will of course find the usual facilities for this kind of work in any of the large centres such as Vienna, Paris or Berlin, but for certain special work some of the smaller clinics may be found more suitable.

Those who elect to follow the clinical teaching on the Continent will who intend to become specialists. Let me tell you first of all, the student who leaves his college and immediately goes abroad to study some specialty for six months or a year, during which time he merely attends the clinics, and then returns home and starts as a specialist, is nothing short of an imposter, a superficial, narrow-minded, ill-trained egoist, too ignorant to understand his own incapacity. Alas ! There are many much scattered all over the world. They do infinite harm to themselves, to their victims, and to the profession, before they are properly found out. Whoever would become a specialist should first have several years general training in hospital and if possible add to this two or three years general practice, then, having found his special aptitude and having taken counsel from some one high up in that particular work as to probable fitness, spend at least two years in some great hospital centre, if possible as a resident in some large special hospital, and then by hard and unremitting toil he will have done all that is necessary, and the reward will be a knowledge of the work so complete that the respect and good will of the community in which his lot is cast, becomes an assured and permanent thing. The specialist worthy of the name has no secret knowledge, no occult formulæ, for the cure of disease; he has only learned his work so thoroughly that the whole subject is as an open book to him, and he sees at a glance things which to the novice are hidden or hopelessly obscure.

In conclusion I would say, let your first and last endeavor be thoroughness in all that you find to do; make no haste to acquire wealth of the sort that men can buy and sell, for the only wealth really worth possessing is ability, and the consciousness of ability, to do good, honost, intelligent work. This is a wealth which can never be taken away. It is not subject to the fluctuations in value of things commercial. It does not tarnish or become soiled by vulgar usage, but goes on increasing in value and in brightness in a way that far outshines even the grasping miser's lurid dreams of avarice. Let this be your goal and you shall win a crown to wear within the heart, "a crown that's called content."

ON THE COAGUATION OF BLOOD IN ITS RELATION TO THROMBOSIS AND THE FORMATION OF FIBRINOUS EXUDATE.

BY

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I intend to report briefly upon some experiments, which were undertaken with the intention of analysing the different factors, which might come into play, if blood vessels are occluded during life by thrombosis, and in the formation of fibrinous exudate. In a preliminary way we may divide the causes leading to coagulation, into three classes: first, the causes determined by the constitution of the blood itself; second, the influence exercised by the surrounding tissue upon coagulable fluids, and third, the influence of elements foreign to the body, such as bacteria and ligatures.

In the experiments reported by former investigators the blood was collected in tubes containing suspensions of solutions of different substances, and in that way the influence of such substances on the coagulation of the blood was determined. Under these experimental conditions the difference between the action of the various substances found was slight, coagulation usually taking place inside of the next ten minutes, therefore the investigators who studied this question came to the conclusion that all extracts of organs accelerate the coagulation of the blood, though Delezenne notes in a brief way, that he found extracts of birds' tissue more effective than others in causing the coagulation of the blood of birds. It is evident that this method does not imitate the conditions usually prevailing in the animal body where the coagulable liquids are usually not mixed with the extracts of organs, but are only in contact with the tissues.

Under these conditions Conradi found that the blood collected in tubes was not influenced in its coagulation by mere contact with tissues. In my own experiments I used a method, which I first employed in previous investigations on coagulation of the blood of arthropods.[1] I freed the blood from its cellular contents, distributed measured quantities of the plasma into small dishes and in the centre of each dish I placed the substance whose influence upon the coagulation of the blood I desired to investigate. This method does imitate the conditions prevailing in the body. The blood of birds is the most convenient for such purposes, because, if it be collected, as Delezenne has shown, through canulas introduced into a vessel, and if contact of the

. These investigations were carried out under a grant from the Research Fellowship Fund of McGill University.

1 Biol. Bull., May, 1903; and fully in Virchow's Archives, July, 1903.

blood with the wound be avoided, plasma can be obtained which does not coagulate for many days.

Among the factors to which was frequently attributed great significance in the formation of thrombosis, blood plates are to be mentioned. If we centrifuge the blood of a goose, collected in the way above stated, we can easily separate a large number of the blood plates or cells analogous to the blood plates of mammals, and white blood corpuscles, from the majority of the red blood corpuscles. If we now add these blood plates to the blood plasma, they do not have any marked effect in causing coagulation, neither do washed red blood corpuscles, even after they have been crushed to set free their cellular contents.

It has further been maintained, that during coagulation of the blood, the plates agglutinate and become to a great extent dissolved, and that these two processes stand in direct causal connection in the coagulation of the blood. It is, however, easy to observe, that the blood plates in birds' blood not only have no strong coagulating influence upon the surrounding plasma, but even that the agglutination takes place long before coagulation sets in, and that these two processes are perfectly independent of each other.

I mention here that it is possible to collect mammalian blood plates in a way analogous to the method employed in collecting birds' blood plates. Ordinary mammalian blood cannot be prevented from early clotting, as is the case with birds' blood; if, however, a few cc. of mammalian blood, from the guinea-pig for example be collected in about 30 cc. of a .8% sodium chloride solution, previously heated up to 56 C., this blood can in most cases be centrifuged without any coagulation taking place. Under these circumstances we see between the liquid and the red blood corpuscles a thin white zone, which consists of agglutinated blood plates and leucocytes. The former are little bodies sending out processes all of similar size, staining more with basic than with acid stains, agglutinating, containing no hæmoglobin, and therefore corresponding perfectly with those elements of the blood which are called blood plates. We have thus an easy method of separating blood plates from the other elements of the blood, and of collecting them in large masses.

If we add to measured quantities of plasma, distributed into flat dishes, pieces of various tissues, we see that certain laws prevail with regard to the power of those tissues to produce coagulation. If we use goose blood, the strongest reactions occur with the tissues of the bird; in our experiments the muscle of the pigeon, goose and hen was used, the pigeon muscle most frequently. Birds' liver also was used, and though it was not always as active as birds' muscle, the difference was

not very great. With guinea-pig muscle we noticed an unexpected falling off in the strength of the coagulating power. In many cases pigeon muscle may cause coagulation of goose plasma in one or two hours, with guinea-pig muscle it may require one or two days or it may not take place at all. Rabbit muscle acts in a way similar to that of the guinea-pig. The muscle of the cat is very active, although not so strong as that of the pigeon. Dog muscle is less active than that of the cat, and frog muscle may sometimes be more active than guinea-pig muscle, but is decidedly less so than birds' muscle. Lobster muscle has a weak activity, fish (flounder) and crab muscle are much more active.

In former investigations I had observed that the blood plasma of the lobster coagulates rapidly under the influence of lobster muscle, that the muscle of the rat and guinea-pig is without effect. Since then I have tested a number of other substances for their coagulating influence on lobster plasma, and found absolute inactivity of all vertebrate tissues which have been so far tried. We therefore can speak of a specificity in the coagulating influence of tissues upon the blood of different animals, and probably one has to assume a different chemical structure for the fibrin ferments present in organs of different classes of animals, and a different structure for the fibrinogen present in the blood of different animals. This specificity, however, is not as absolute as the one observed during the last years in substances obtained by immunising animals, for example, the precipitins and agglutinins. Experiments carried on with turtle blood and the blood of rabbits lead to similar conclusions, and upon the latter experiments I shall report later. I may state in a premilinary way that in several series of experiments, in which the blood of rabbits was collected in tubes containing extracts of different organs, extracts of the muscle and liver of the rabbit had a rapid coagulating effect upon the blood of the rabbit, extracts of the muscle and liver of the pigeon and of the guinea-pig seemed to have rather an inhibiting influence as compared with the action of an 8% Nacl. solution. In a similar way extracts of the muscle and liver of the turtle have a specific coagulating effect upon the blood of the turtle, extracts of the organs of a rabbit or pigeon are considerably less active. These latter experiments, however, I intend to repeat before I can accept these results as definite. On the whole other organs of the different species act in a similar way to muscle; there, however, seem to be some slight differences, the lymph glands of guinea-pig were usually found to be more active in causing coagulation than the muscle of the guinea-pig.

If we add, however, instead of pieces of various organs, the clots from the blood of various animals, we do not find this specificity. If

we again use goose plasma as a test object we find that the clot of the blood of a guinea-pig is just as active, or sometimes even more so, than the clot of a pigeon or a goose in causing coagulation. Frog clot is also active. Clots of the blood of the dog and cat are extremely active, but their activity never surpasses and usually is less than the activity of pigeon muscle. In regard to the various clots, we do not observe specificity to the same degree as in the case of tissues. It would not be difficult to distinguish by this biological method between muscles of different classes of vertebrate animals, it would, however, be impossible to distinguish between the clots of different classes of animals.

This difference between these two sets of coagulating factors can also be demonstrated in another way. Pigeon muscle acts on goose plasma only when that plasma is not more diluted than 1-10, or at the most 1-20. Goose plasma diluted up to 1-30 is not influenced at all by pigeon muscle. If we add, however, to goose plasma diluted 1-30, a piece of clot of the blood of a guinea-pig, it usually causes coagulation, although such a clot is less active than pigeon muscle, if added to goose plasma diluted to 1-5, or 1-10. Of interest in this connection is the fact that a number of times pigeon muscle caused a more rapid coagulation in diluted than in undiluted goose plasma, although in other cases undiluted plasma coagulated more quickly. Coagulated pigeon blood acts also here in a way similar to coagulated guinea-pig clot.

Lymph collected from the thoracic duct of the dog is as active as blood clot; the pericardial fluid of the human body is also active in causing coagulation, although to a less degree.

If we add pieces of tissues or of a blood clot to guinea-pig plasma obtained by the method described above, we find the different clots very active, although the muscles of the various animals, pigeon muscle included, are quite inactive. In this case the guinea-pig blood is diluted very much, and it therefore resembles diluted goose plasma. There is, however, one marked difference between diluted goose plasma and diluted guinea-pig plasma; strongly diluted goose plasma has lost, or almost lost, the power of coagulating spontaneously; guinea-pig plasma, on the other hand, although not affected by pigeon muscle, easily coagulates spontaneously, sometimes after a few hours, sometimes after one day, and if such a spontaneous coagulation does not take place, we can usually induce it easily by the addition of a small quantity of an otherwise inert substance like powdered charcoal, which even in a much more concentrated solution of goose plasma is very slow or even unable to produce coagulation.

In the large majority of these experiments the coagulation of the

plasma begins immediately around the piece of tissue which was put into its centre, and gradually proceeds from there to the periphery; only occasionally, and especially in such cases, where the plasma seems near spontaneous coagulation, does the clotting start at the periphery of the dish. This fact is of great interest. It shows that the substances causing coagulation pass slowly from the tissue into the surrounding fluid, and that they have the power of penetrating through the gelatinous masses which form around the centrally situated piece of the organ. This ferment-like substance is able to pass through gelatinous material, although such colloidal substances, as solutions of soap, are, according to the experiments of Friedenthal, not able to pass through gelatin.

The specificity of the conditions causing the coagulation of the blood of different species are also shown by the following facts. Peptone (Albumoses) in a 10-15% solution, added in a certain proportion to goose plasma, has a marked accelerating influence upon its coagulation; the same substance added to the plasma of the lobster inhibits or prevents its coagulation. In this connection it is noteworthy, that in both cases Witte's peptone is usually much more active than Merck's peptone, which in this respect is frequently almost inert. In a similar way leech extract, which prevents in a certain strength the coagulation of goose plasma, has no inhibiting influence of any significance upon the blood plasma of the lobster. Calcium chloride, however, added to goose plasma or lobster plasma, has in both cases none or only a very slight accelerating effect upon coagulation.

I wish briefly to state the result of a number of experiments made on the influence of bacteria upon the coagulation of the blood *in vitro*. Such experiments to my knowledge have not before been recorded. It was found that the staphylococcus pyogenes aureus has a specific influence in causing coagulation of the blood, a much more marked influence than any other organism investigated so far. The bacillus of diphtheria, the bacillus xerosis, the streptococcus, and the bacillus of tuberculosis, the typhoid bacillus, have so far been found to be without any influence. It must, however, be stated that the growth of the streptococcus in the bouillion which was used was very weak, and that only suspensions of a glycerine agar culture of the tubercle bacillus in salt solution has been so far employed. The colon bacillus has a somewhat stronger effect than the typhoid in causing coagulation, although its power is not of much significance. The coagulating influence of the bacillus pyocyaneus and of the bacillus prodigiosus is more pronounced, but it is much weaker than that of the staphylococcus. The reaction of the bacterial cultures can be excluded by control experiments as the cause of this coagulating influence. The bouil-

lon cultures of the staphylococcus killed by heat had lost all or the greatest part of their coagulating power. The coagulation under the influence of the staphylococcus usually began three to five hours after its addition to the blood plasma, and it is therefore unlikely that substances produced by the staphylococcus in the blood plasma were the cause of this coagulating influence.

Goose plasma injected into the peritoneal cavity of a rabbit or into a pigeon was, after two to four hours still uncoagulated. In two experiments, however, in which simultaneously with the plasma a bouillon culture of the staphylococcus aureus was injected, coagulation had taken place after two hours in one case.

By continuing these experiments and employing the methods here described we shall be able to gain a clearer insight into the causes of coagulating processes in the body. An intimate knowledge of the causes of coagulation must be of great importance if we consider the practical bearing such coagulating processes have upon pathological conditions. The formation of adhesions after peritonitis is caused by the coagulation of the coagulable fluid in the peritoneal cavity; the formation of a scab during wound healing is a further instance of the practical importance of coagulating processes. The influence of microorganisms on the formation of fibrin in the lung in pneumonia has not yet been investigated. An understanding of such obscure conditions as that described by Curschmann as "Zuckergussleber" and by Nicholls as Hyaloserositis, might be hoped for by the further investigation of the influences of certain bacteria upon the coagulation of liquids containing fibrinogen. In this connection the results obtained with the staphylococcus in our experiments are noteworthy.

The pathological significance, however, of the solidification of liquids is mainly based on two facts. In the first place, the clotting of liquids interferes with the circulation of the substances necessary for the life of the cell, especially in the case of thrombosis; secondly, connective tissue cells and blood vessels, which do not usually grow into liquids, begin under certain conditions, to advance into solid coagula, a fact perhaps to be explained by the contact irritability which seems to be a property of the protoplasm of many cells. This organization of a coagulum by connective tissue is the cause of adhesions which may form. If, in the small dishes used for our experiments, the substances causing coagulation were in close contact with the bottom of the dish, the coagulum usually was fixed to the surface of the dish; if, however, the substances were suspended in the liquid, frequently the coagulum was movable. Under these conditions a connective tissue ingrowth would probably not take place in the living body.

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THE BACILLUS OF DYSENTERY.

At the meeting of the American Pediatric Society in May an interesting discussion took place as to the role taken by the Bacillus Dysenteriæ in the etiology of the summer diarrhœas of children. This bacillus, first studied by Shiga in the Imperial Hospital at Tokio, has been recently shown to be the active cause of epidemic dysentery in Japan, in the Philippines and in certain parts of Europe.

Last summer, under the superintendence of Dr. Simon Flexner, a careful investigation was made by Drs. Duval and Bassett at the Thomas Wilson Sanitarium near Baltimore, of the cases of diarrhœa which occurred in that institution. These investigators report, that this bacillus was found in all cases characterized by an acute onset, elevation of temperature and the presence in the fæces at some stage of the illness of mucus and blood. The specific organism was also found in scrapings of the intestinal mucosa at autopsy, and in one case from the mesenteric lymph nodes and liver. It was present in large numbers in the stools

of acute cases, but was secured with difficulty in cases of a mild character.

Dr. Flexner, who opened the discussion, described how Shiga had first fixed upon the bacillus as the important etiological factor in the attacks of epidemic dysentery, which occurred in Japan. As many organisms as possible were first separated from the dejecta of patients suffering from the affection, and then each form was individually tested with the blood serum obtained from the same patients, in the same way as the Widal test is made with the serum from typhoid fever patients. In the case of the bacillus dysenteriæ alone was an agglutination action observed, and this reaction was obtained from the blood serum of almost every patient suffering with this affection; with certainty in all those in which the bacillus was found in the dejections.

The conclusions arrived at therefore were that this bacillus is a stranger in the system, and that its etiological relation to this type of disease is shown by its presence, its constancy, and the peculiar blood reaction obtained from it. In the children examined at the Thomas Wilson Sanitarium, agglutination reactions were obtained, when the organisms were tested with the blood serum of the patients from whom they were secured; with the serum of other infants suffering from summer diarrhœa; and with the serum of adults with acute dysentery. This bacillus was not found in the stools of 25 healthy children, nor in those of infants suffering from simple diarrhœa, marasmus and malnutrition; nor did the blood serum from these agglutinate the dysenteric bacillus.

In the discussion which ensued the great value of these investigations was generally acknowledged. Holt described the results obtained as the first ray of light on the uncertain etiology of summer diarrhœas. Nevertheless, of those taking part in the discussion, the greater number considered that the diarrhœa of infancy included many types which would eventually be found to be due to different organisms. It was thought to be hardly probable that all cases of summer diarrhœa are occasioned by the presence of this bacillus. The subject is one which demands careful investigation and promises brilliant results.

As regards the prevention of the infection it may be said, that while we have no positive knowledge as to the exact method by which the organism gains access to the system, all evidence points to the fact that like the germs of typhoid and cholera, it is liable to contaminate drinking water; like these organisms, however, it is easily destroyed by a temperature much below boiling point. Hence arises the necessity of insisting, during the summer weather at least, that children and infants be allowed to drink no water except that which has been sterilized by boiling.

At the present it appears to be quite possible by an imunizing serum to protect guinea-pigs against a dose of infection, which, without such injection, would inevitably prove fatal. Attempts have been made to treat the disease in adults by the injection of an immunizing serum, and out of 500 cases at the hospital in Tokio 280 were treated by Shiga with a serum, while the remainder were treated in the ordinary way. In those treated with the serum the mortality was only 9 or 10 per cent., while in the others it amounted from 30 to 50 per cent., 39 per cent. being the average. Shiga also reported that under the serum treatment, there was a prompt amelioration of the symptoms, and a decided shortening of the course of the disease.

Thus far little has been attempted in the serum treatment of this affection in children. Dr. Herter in New York reports that he employed the serum in a very desperate case of dysentery in a child of five years with an immediate amelioration of all the symptoms. The number of movements was diminished, and the tenesmus relieved, the temperature and pulse were lowered, and the patient became distinctly more comfortable. Unfortunately, the amelioration was only temporary, a fact which was attributed by Herter to the presence of secondary infections. In reporting the case, Dr. Herter said, that he did not think we should infer, that because we had not succeeded with typhoid serum, therefore we should not succeed in dysentery. Much study and research as well as extended observation is still required however, before we can place this application of serum therapy on a satisfactory basis.

THE MEDICO-CHIRURGICAL SOCIETY.

The meetings of the Medico-Chirurgical Society for the season of 1902-1903 came to an end with the last meeting. Looking at the number and quality of the communications to the Society, the variety and interest of the living cases, the rarity and significance of the pathological conditions and the fulness of the discussions, all are agreed that the meetings were a success. Yet from remarks made by the president incidentally, it would appear as if there were lacking a lively interest in the proceedings. Certainly during the later meetings there has been a diminished attendance, especially of the older members; that was due, not to a lack of interest, but to the absorption of professional cares and the fatigue that always comes towards the end of the winter's work.

The very excellence of the programmes has tended to keep tired and busy men away. The meetings as rule extend over two hours and a

half; the material presented makes such demands upon the attention, that there is some sense of relief when they are over. One example will serve. At the second last meeting there were four living cases shown; one the results of an operation for removal of the lower jaw by a new method, another to illustrate rupture of the spleen, one of dentigerous cyst and yet another case of transposition of the viscera. All four cases were elucidated by elaborate papers, followed by a discussion. In addition, there was a pathological demonstration of great interest, and a case report with specimens, skiagraphs and photographs. Besides all this the ordinary business of a society of two hundred members had to be transacted.

This wealth of material, clinical and pathological, speaks well for the profession, and it is no solution of the difficulty to reduce the amount produced before the society. On the contrary, it might easily be increased; the meetings would still retain their very high standard, and yet they might be made tolerable to busy and tired men.

The truth is the time has come for a subdivision of the work. All are not interested in everything, and most men are interested in very little. The living cases could be shown in one or two rooms. Short printed accounts of each would minister sufficiently to the curiosity of the members and those who desired to go deeper into the cases could seek out those who presented them and inform themselves upon what was obscure, without listening to a great deal they knew before and much they did not care to hear.

The pathological specimens could be shown, and the demonstrations given in another quarter, where those who have an interest in such things could observe at their leisure. It does the members very little good, it certainly does the specimens no good, to have a tray with its confused contents passed from hand to hand.

The case reports could be made much more entertaining by the omission of details having no bearing upon the matter in hand. Nothing is gained by making a report read like an account of a medico-legal inquiry, by introducing all the facts of the patient's daily life, his diet, occupation and amusements, his early diseases and his ancestry, save in so far as these facts elucidate some part of the case. A reporter is not bound to take up the systems, organs and tissues in order, and report them normal, and anything left unsaid can always be reported in the printed proceedings.

If the meetings were less formal, there would be less inducement for the making of speeches, a form of entertainment which is very tedious. The Council has already done much towards discouraging hasty utter-

ance, by taking all matters of business into its own hands for preliminary consideration; otherwise there is sure to be discussion without decision, and decision without discussion.

Under some such arrangement the actual meeting need not last more than an hour. Each member could see and hear what he desired to see and hear, and if anyone had a weighty thing in his mind, he would have opportunity to discharge it quickly and to good effect. The members would have occasion for speech and communion amongst themselves, and all would find an excuse for not enduring things in which they had no interest. The meetings in such case would still be profitable, and a source of pleasure as well. The new rooms lend themselves admirably to this plan and when the walls are adorned with portraits of all the past presidents they will have a new interest. The excellent portrait of the late Dr. Reddy, presented by his family, is only the forerunner of many others to come.

THE CONVOCATION.

The seventy-fourth convocation of McGill University for conferring degrees in the Faculty of Medicine was in every respect remarkable. The number of graduates was an even hundred, nearly double what it was ten years ago, and no preceding class has received so much instruction or passed through a severer ordeal of examination.

The disassociation of the medical students all through their course from the university, was emphasized by the place in which the ceremonial of graduation was performed. There are many rooms in the University amply capacious to accommodate all who had any legitimate business at the convocation, and the graduates should not be denied the privilege of meeting within their own walls.

A convocation is an assemblage of all the component parts of a university, in which all should be represented from the Visitor to the freshest undergraduate. The meeting under consideration scarcely fulfilled that condition. The Visitor was absent as a matter of course and also the Principal; of the fourteen Governors there was only one present; of the forty Fellows there were six, and of the one hundred and ninety-five officers of instruction there were but twenty-two. As a matter of fact, there was not even a majority of the members of the Faculty of Medicine present.

The convocation was presided over by Dr. Craik representing the Governors, and Dr. Johnson, who is still Vice-Principal, took Dr. Peterson's place. It was a pretty ruse of his the way he destroyed the traditional synchrony between the capping and the applause. The

Vice-Principal is not the man to be imposed upon by Medical students, nor would he cast his Latin pearls before the three belated "engineering students," upon whom he bestowed a degree. English was good enough for them.

The valedictory address on behalf of the students was excellent, and amongst its other excellencies was briefness. Humour does not come naturally to the young, and yet the speaker for the class always feels bound to employ that medium of expression. Some day some valedictorian will speak words of sobriety and earnestness and surprise himself by his success. The reply by Dr. Buller was full of matter, as all of Dr. Buller's utterances are, though there were one or two incursions into metaphysics which at one moment did not promise well.

The Dean was particularly happy in his closing address, and his words of advice were touched with emotion. The sincere tribute to Wyatt Johnston was very grateful, and all were glad to receive the assurance that the chair he occupied for so short a time had again been adequately filled. The appeal made last year for an increased endowment was again renewed, but from the nature of the audience it would appear as if greater success might be met with in other quarters. In the face of the great schools arising in the United States, and the joining of the forces of Trinity and Toronto, the Dean does well to be alive to the competition that must result and the necessity of providing against it.

THE CONTROL OF TUBERCULOSIS.

The league against tuberculosis is proceeding in an orderly way with its important work. They are getting to the root of the matter in dealing with the dissemination of the plague. If they can prevent the pollution of sidewalks, railway stations and public meeting places by sputum laden with tubercle bacilli, they will have cut off a fertile source of infection. Street cars and public conveyances are no longer a danger, for the menace to life has already been effectually removed from them by the stringent law against spitting. The plea offered by a prisoner in the Recorder's court, that he was suffering from consumption, and so compelled to spit, is no longer accepted as a justification. The important deputation which waited upon the Mayor pointed out to him the progress that is being made in other places. Toronto is applying to the Legislature for power to make a by-law upon the subject; Ottawa has such a law in force; Winnipeg has the matter up before their Council, and Hamilton has admonitory signs in the streets. The league is now calling for a regulation with a suitable penalty in Montreal, that no person shall spit upon any sidewalk or upon the floor

of any street car or other public conveyance, while upon or traversing any of the streets, lanes, or squares of the city of Montreal, or upon the floors of any theatre, opera house, music hall or hall used for public meetings, railway or steamboat station, or waiting room, or other public hall, building, room or place, or upon any platform surrounding, in front of, or in the immediate vicinity of, any such place. A by-law to the above effect has been submitted to the Council and was referred to the Health Committee for consideration.

The next move is in the direction of notification by physicians of cases of infection. At first it will be voluntary and in such cases the league will undertake to look after them in the way of their surroundings, seeing about proper ventilation, the taking of proper precautions against the spread of infection and the supplying of disinfectants. There is precisely the same reason for notifying cases of tuberculosis, as exists in the case of scarlatina or any other infectious disease.

The public has been approached through the churches; another section is to be reached through the out-door departments of the hospitals, and the physicians have promised their co-operation. The cogregating of infected persons in these places must be a grave danger, and much can be done by disseminating knowledge amongst them. It is by such systematic work the league in the end will attain to success.

Dr. Adolph Lorenz, who has been awarded by his admirers the ambiguous soubriquet of "bloodless surgeon," has finished his second American tour by a visit to Montreal. It is scarcely necessary to do more than make mere mention of the fact, for nothing can be added in the way of information to what has already been so generously supplied by the daily press in regard to the daily movements of this distinguished visitor. Those who had the privilege of meeting him confirm the advance reports of his fine physique and striking appearance, his geniality and dexterity in his work.

Dr. Lorenz, by his visit, has done good in calling the attention of surgeons to cases of congenital dislocation of the hip, and he has demonstrated that much can be done for their relief, whether the method he employs be adopted or not. Some cases are suitable for forcible reduction, and some are better served by a cutting operation, but no mechanical procedure will ever relieve the surgeon from the exercise of that judgment and anatomical knowledge which must ever decide the course he shall pursue. Long before Dr. Lorenz was discovered by the daily press, he was a successful surgeon, known to the profession for his scientific spirit, his industry, knowledge and skill;

the notoriety that has been thrust upon him by his advance agents and exploiters has not diminished these qualities in the least.

The career of Dr. Lorenz is a great encouragement to those surgeons who are prone to the vice of advertising, and in time it may be considered that an operating theatre is a theatre indeed, and its equipment not complete without a press gallery and a telegrapher's key. It must be confessed however, that those who like to go quietly, and believe in the virtue of reticence, have received very little consolation from the performances of this eminent surgeon.

The extremely attenuated entertainment, that was recently given in the grounds of McGill University, fascinating and innocent as it was, must have given rise to many observations more or less profound. The generations of workers, that wrought at the excavation of the little dingle below the Arts building, builded or excavated better or worse than they knew, for they could never have foreseen that they were creating a literal stage whereon the characters from Professor Moyse's lectures might make their entrance.

The whole effect was extremely curious; Rosalind fleeing up the steps of the mining building like a wild creature of the woods, and emerging like a Donalda attired for the altar; the motley, disclosing such wisdom as was never heard before in any university grounds or building either for the matter of that, and Jaques with his humourous sadness, his cheerfulness in adversity, and his perspicasity in finding a fool in the forest of the McGill campus. One would not have thought his cry of "Ducdame" should have received so free a response in any university grounds. It was a strange note to emanate from the purlieus of a university:—"Who doth ambition shun, and loves to lie in the sun, come hither, come hither, come hither."

And one whose imagination was touched with the spirit of the piece might also see upon the steps of the Natural History Museum looking down upon "the poor dappled fools" the aged and slightly bowed figure of the late Principal in cap and gown, with an expression of gentle remonstrance upon his kindly face.

The committee appointed at the general meeting held on the 4th March have, after four months' deliberation, issued a statement to all graduates dealing with the proposed scheme for the erection of a union building for the students and graduates of McGill, in commemoration of the university's 75th anniversary.

The committee seeks to explain the functions of a Union on the

ground that undergraduates may be brought together to share in the use of a building which makes provision for relaxation, amusement, and general intercourse. Such a building, at the modern university, the committee states, usually contains a large assembly hall or living room, a reading room, a small restaurant, a billiard room, a trophy room, a hall large enough to be used for meetings of the Literary society or of the Athletic associations, and several smaller rooms for chess, for the glee club, for the editors of the students' paper, and in general, for the smaller undergraduate organizations. Baths, a swimming tank, and an exercise room are other important adjuncts to be secured if funds permit, and architecturally, the building is made as beautiful as possible, and is so arranged that large spaces can be made available for special entertainments.

The experience of other universities is cited to show the value of such a centre for the development of a collective university life, and the graduates are called upon to provide the means towards obtaining the same boon for their Alma Mater.

The retirement of Alexander Johnson from the position of Dean of the Arts Faculty, Professor of Mathematics, and Vice-Principal of McGill University, and of J. Clark Murray from the chair of Mental and Moral Philosophy, is a source of regret to their friends, and that term includes every student who has passed through the University these thirty years. Professor Moyse, who succeeds Dr. Johnson as Dean and Vice-Principal, is respected by every member of the University for his attainments and qualities, and he will have a sympathetic audience in the students of medicine with whom he is closely allied by reason of his researches in physiology.

The New York Medical Journal and the Philadelphia Medical Journal, beginning with the issue of June 20th, are consolidated. Instead of two excellent medical papers we shall have in future one which shall be more excellent still. Each journal has had a wide circle of readers composed of the best elements of the profession, and each has exerted a strong influence for good. With their forces united even better things may be expected.

Reviews and Notices of Books.

Clinical Treatises on the Pathology and Therapy of Disorders of Metabolism and Nutrition. By Prof. Dr. Carl von Noorden. Authorized American Edition, translated under the direction of Boardman Reed, M.D. E. B. Treat & Company, New York, 1903.

Part I.—Obesity. The Indications for Reduction Cures. pp. 59. Price 50 cents.

Part II.—Nephritis. pp. 112. Price $1.00.

Part III.—Membranous Catarrh of the Intestines (Colica Mucosa). pp. 64. Price 50 cents.

Prof. von Noorden is already so well and favourably known as a careful and scientific observer, an original thinker, and a most successful physician, that it seems almost unnecessary to recommend his works to the medical public. The excellent translations of the three handy little volumes which form the first instalment of, it is to be hoped, a long series of monographs from the same pen, call, however, for at least some mention of their excellence and of their usefulness to the practicing physician. It is seldom indeed, that one finds in such a small space so much that is worthy of being retained, so little that is not of prime importance—so much "meatiness" without "padding." Prof. von Noorden speaks *ex cathedra* and with good reason, for his personal experience in the subjects he deals with has been unusually large and varied, and yet he does not weary the reader with detailed accounts of cases, but confines himself to a discussion of broad principles of treatment. The subject of Obesity is considered under the two main heads of, first, simple obesity in otherwise healthy subjects, and secondly, obesity complicated with other diseases. The author draws attention to the necessity of distinguishing between advanced, medium and slight degrees of simple obesity in deciding whether or not a reduction cure is advisable in each of these classes of corpulency, and discusses in a broad way the different measures to be adopted, laying special emphasis on the need of individualizing in every case and not adopting routine treatment. In the second section, obesity associated with diseases of the circulatory system and of the kidneys, chronic pulmonary diseases (apart from tuberculosis), chronic articular rheumatism, gout, other diseases of the organs of locomotion, diseases of the nervous system, diabetes mellitus, and pulmonary tuberculosis, is dealt with in the same broad outlines, and with regard to the last mentioned disease a protest is made against such over-feeding as will lead to permanent obesity with its train of ills.

Part II, on Nephritis, is, to quote the translator's preface, "bold, original, and somewhat iconoclastic." This is particularly evident in the section on the treatment of contracted kidney, and will no doubt startle those who have been accustomed to pin their faith to the time-honoured but apparently fallacious teaching of nearly every text-book on the practice of medicine, ancient and modern. Beginning with a short review of the customary therapy of kidney diseases, the author follows with sections on the principle of saving the kidneys in renal diseases, on the facts of metabolism as a basis for the dietary regulations to be adopted in the protective therapy of kidney diseases, and, finally, the application of these data to the treatment of acute, subacute and chonic forms of nephritis.

Part III, written in corroboration with Dr. Dapper, deals with Membranous Catarrh of the Intestines and begins with a review of the various opinions held by clinicians as to the etiology of this affection. This is followed by a detailed account of the symptoms, and their interpretation according to the author's theory of their causation, which is in brief, constipation *plus* excessive irritability and over-activity of the glands of the large intestine, and occurring in persons with a neurasthenic or an hysteric predisposition. The chapter on treatment is very full, and follows naturally on the writer's conception of the morbid processes in operation. *H. A. L.*

Clinical Hæmatology. A practical guide to the examination of the Blood with reference to diagnosis, by John C. DaCosta, Jr., M.D. P. Blakiston's Son & Co., Philadelphia, 1902, pp. 474. Eight full-page colored plates, three charts, and forty-eight other illustrations.

As stated in the preface, "this book, designed as a practical guide to the examination of the blood by methods adapted to routine clinical work, represents an endeavor to recount the salient facts of hæmatology as they are understood at the present time, to correlate certain of these facts with familiar pictures of disease, and to apply them to medical and surgical diagnosis. The purpose has been to interpret the blood report according to its true value as a clinical sign, neither exploiting it as a panacea for every diagnostic ill, nor belittling it because of its failure consistently to give the sought-for clue in every instance." A perusal of some of the principal sections of the volume shows that this claim is fully warranted by the careful consideration of facts personally observed and gathered from reliable authorities, and by judicious conclusions based upon these. The author's experience is based upon some four thousand blood examinations in hospital and private practice, and in the army medical service, and he has drawn upon the

records of the German Hospital in Philadelphia, for the bulk of the original data referred to in the text. The volume contains seven sections under the following headings:—

Examination of the Blood by Clinical Methods; The Blood as a whole; Hæmoglobin, Erythrocytes, Blood Plaques, and Hæmocomia; The Leucocytes; Diseases of the Blood; The Anemias of Infancy and Childhood; General Hæmatology. The first section is very comprehensive and contains a full description with appropriate illustrations of the various instruments in use, the preparation and uses of blood stains, and sub-sections on spectroscopic and bacteriological examinations, and on serum reactions. In the last section the blood findings in sixty-eight different diseases or pathological conditions (apart from diseases of the blood itself) are considered. Possibly too much space has been devoted to this section, 181 pages, considering the variable results obtained by different observers, and the frequent impossibility of drawing any conclusions whatever from the mass of facts adduced. The sections on the blood diseases are quite exhaustive and satisfactory. The volume is certain to be a very useful one, both to those who wish to acquire thorough and careful methods of blood examination, and to clinicians as a reliable and up-to-date work of reference in hæmatology. *H. A. L.*

Progressive Medicine. Fifth Annual Series. Volume II., June, 1903. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. Octavo, bound in cloth, 427 pages, with 46 illustrations. Per volume, $2.50, by express prepaid. Per annum, in four cloth-bound volumes, $10.00. Lea Brothers & Co., Publishers, Philadelphia and New York.

This book represents what is of real scientific and practical value in current medical literature; it is not merely a mass of abstracts of articles which have appeared in magazines, but each of the contributions possesses features which render it valuable. Dr. W. B. Coley has an article upon the surgery of the abdomen, including hernia, and the discussion of the operative treatment of hernia shows how the radical cure of that affection has been placed upon a scientific basis.

Dr. Clark begins the section on Gynæcology with a thorough discussion of all the various phases of cancer of the uterus, and then takes up the various affections of the abdominal and pelvic viscera, describing fully their diagnosis and treatment.

Dr. Stengel's section on Diseases of the blood includes morbid conditions of the ductless glands and disorders of metabolism, and a discussion of the effect of various poisons upon the constitution of the blood in infectious diseases.

THE GEOGRAPHY OF DISEASE. By Frank G. Clemow, M.D., Edin., British Delegate to the Ottoman Board of Health, Physician to H. M. Embassy at Constantinople, Hon. Member of the Russian National Health Society. University Press, Cambridge, 1903.

This work forms one of the Cambridge Geographical Series, under the general editorship of F. H. H. Guillemard, M.D. Dr. Clemow, the author, is a man who has seen many lands and many peoples; indeed the preface is dated from Constantinople. From his affiliations with foreign bodies and his acquaintance with outland peoples, he has been able to deal with the geographical distribution of disease at first hand, and to produce a valuable and interesting book.

The rapid expansion of British and German colonial possessions has directed attention to the diseases of strange peoples, particularly in tropical climates, and such writers as Hirsch, Davidson, Patrick Manson, and Lombard have made the subject their own, but they deal chiefly with particular cases. Dr. Clemow has gathered together a mass of information and made a convenient and useful book. In a subject so general there is necessarily a good deal of surmise and the author makes free use of "it is said," "it is believed." One misses any reference to Hamilton Wright's work on beri-beri, and it is a new doctrine that syphilis was introduced into Scotland by Cromwell's devout troopers.

A MANUAL OF BACTERIOLOGY FOR STUDENTS AND PHYSICIANS. By Fred C. Zapffe, M.D., Professor of Histology in the College of Physicians and Surgeons, and Professor of Pathology, Bacteriology and Hygiene in the Illinois Medical College, Chicago. 350 pages, 150 engravings, 7 coloured plates; $1.50, flexible leather, $2.00. Lea's Series of Pocket Text-Books, edited by Bern B. Gallaudet, M.D.

This book is sure to meet with the favour of students and practitioners, as it contains all they need know upon the subject of bacteriology, presented in an attractive form. The compass of the book, 350 pages, prevents an elaborate discussion of disputable matters, but they are not passed over in silence and interest is stimulated to further enquiry. The book is a safe guide and an adequate summary of present knowledge.

THE LAW OF MENTAL MEDICINE, by THOMAS HUDSON, Ph.D., LL.D. A. C. McClurg & Co., Chicago.

The object of this book, as set forth in the preface, is to assist in placing mental therapeutics on a scientific basis, which in itself is a desirable thing. There is a method of treatment by suggestion and there must be a principle underlying it. It is to the elucidation of this principle the author addresses himself, and certainly if he has not laid it entirely bare, he has made a most interesting book by the operation. Many of the curiosities of history are dealt with, especially the ones recorded in those Semitic writings, which have obtained so wide a circulation in the western world.

BOOKS RECEIVED.

Climates and Health Resorts in the Dominion of Canada, by Guy Hinsdale, M.D.; reprinted from the Transactions of the American Climatological Association.

Transactions of the American Climatological Association, Vol. XVII., 1902.

Medical News.

McGILL MEDICAL CONVOCATION.

The meeting of convocation of McGill University for conferring degrees in the Faculty of Medicine, was held in the Windsor Hall at 3 p.m., on the 12th June. Dr. Robert Craik in his capacity of Governor presided, and the duties of the Principal were filled by Dr. Johnson. The public attendance was large. Rev. James Barclay opened the convocation with prayer.

The Dean, Dr. T. G. Roddick read the prize, honour and class lists. The prize list was as follows:—

Holmes gold medal, for highest aggregate in all subjects forming the Medical curriculum—E. M. McLaughlin, Winona, Minn.

Final prize for highest aggregate in the fourth year subjects—F. S. Patch, B.A., Montreal.

Third year prizeman—J. L. Robinson, St. Marys, Ont.

Sutherland medallist—J. Graham Willmore, Montreal.

McGill Medical Society senior prizes—D. W. McKechnie, first; W. G. Campbell, second.

Second year prizeman—H. C. Mersereau, Doaktown, N.B.

Senior anatomy prize—H. C. Mersereau, Doaktown, N.B.

McGill Medical Society junior prizes—D. L. S. Likely, B.A., first; L. de C. McIntosh, second.

First year prizeman—C. S. Williams, Tyne Valley, P.E.I.

Junior anatomy prize—P. A. MacDonald, Alma., N.B.

Honour list: Fourth year. F. S. Patch, B.A.; N. D. Parris, W. E. Nelson, E. M. McLaughlin, G. H. Turner, B.A.; J. M. McCulloch, R. King, B.A.; R. Elder, B.A.; A. S. Burns, B.A.; L. C. Bishop.

Honour list: Third year. J. L. Robinson, J. A. Nutter, B.A.; J. C. Fyshe, A.B.; J. G. Willmore, F. D. Charman, H. S. Atkinson, F. P. Yorkston, M.A.; A. C. Sellery, W. W. Chipman.

Honour list: Second year. H. C. Mersereau, J. H. MacDermot, F. J. Tees, B.A.; F. A. C. Scrimger, B.A.; H. A. Leslie, C. F. Moffatt, B.A.; J. W. Dykes, T. R. B. Nelles, E. H. Henderson, B.A.; H. C. Burgess, J. H. Soady, B.A.; D. S. Likely, B.A.; B. W. Robertson.

Honour list: First year. C. S. Williams, J. H. Donnelly, H. S. Crowe, B.A.; P. A. MacDonald, A. W. Hunter, D. R. Fraser, R. L. McArthur, O. S. Hillman, W. L. Mair, J. J. Sheahan, H. L. Sims, H. C. B. Allen, R. F. Flegg, J. W. Turnbull.

When the prizes were awarded, the degrees of Doctor of Medicine and Master of Surgery were conferred upon the following undergraduates:—

R. Allen, Montreal; A. W. Allum, Renfrew; C. W. Anderson, B.A., Halifax; J. J. Andrews, St. Lambert; G. A. Bishop, Kinburn, Ont.; L. C. Bishop, Marbleton, Que.; A. K. Blair, Chicoutimi; J. H. Boulter, B.A., Picton; O. Boyd, Russell, Ont.; R. M. Boyd, Belleville, Ont.; J. E. Brooks, B.A., Eastport, Maine; A. S. Burns, B.A., Boston; W. G. Campbell, Brantford; H. B Chamberlain, Montreal; E. C. Chandler, Montreal; H. L. S. Chaplin, St. John's; H. C. Church, Cheslea; H. H Cowperthwaite; St. John's; L. V. Croft, B.A., Middleville, Ont.; W. G. Cumming, B.A., Montreal; A. J. Dickson, B.A., Goderich; W. H. Donnelly, Ogdensburgh; F. C. Douglas, Montreal; F. H. Doyle, Natick; P. L. B. Ebbett, Gagetown; R. Elder, B.A., Trout River, Que.; R. H. Ells, B.A., Ottawa; J. M. English, New Westminster; W. H. Ferguson, St. Thomas; R. D. Forbes, Stratford, Ont; C. E. F. Fortin, B.A., Winnipeg; E. H. Freeze, Penobsquish, N.B.; A. C. Frost, Montreal; W. P. Gale, Quebec; C. R. Gilmour, Brockville; N C. Hansen, M.A., Portland; R. H. M. Hardisty, B.A., Montreal; F. L. Horsfall, B.A., Montreal; W. T. Hynes, Darnley, P.E.I.; R. W. Kenny, Ottawa; R. King, B.A., Sackville; J. W. Kissane, Chataguay, N.Y.; W. V. Lamb, St. Andrews, N.B.; Ernest Laurie, B.A., Montreal; J. A. Lundie, B. A., Montreal; W. S. Lyman, Ph.B., Knoxville, Tenn; A. L. Lynch, Ottawa; P. A. McDonald, B.A., Bailey's Brook, N.S.; W. A. Mackenzie, Wood Islands, P.E.I.; J. W. MacKinnon, Charlottetown; J. M. McCulloch, Durham, Ont.; C. A. McDiarmid, Kemptville, Ont.; P. A. McDonald, B.A., Dundee Centre, Que.; S. H. McDonald, B.A., St. John, N.B.; I. W. T. McEachern,

Rockland; J. R. McEwen, B.A., Dewittville, Que.; F. C. McGrath, Norway, P.E.I.; J. D. McGuigan, Kelly's Cross, P.E.I.; D. W. McKechnie, Dundas, Ont.; H. H. McIntosh, Montreal; J. A. McIntosh, Vankleek Hill; D. D. McLaren, Russell; E. M. McLaughlin, Winona, Minn.; Thos. McPherson, B.A., Stratford; W. J. Maby, Cohoes; C. F. Magee, North Gower, Ont.; A. G. Meindl, Mattawa; I. E. Mitchell, B.A., Sherbrooke; C. H. Montgomery, St. John, N.B.; S. C. Morris, Wallace, N.S.; H. B. Munroe, B.A., Almonte; H. E. Munroe, St. Elmo, Ont.; J. H. Munro, Maxville, Ont.; J. S. Murray, St. John, N.B.; J. S. Nelson, Ottawa; W. E. Nelson, Montreal; C. W. O'Brien, B.A., Montreal; J. M. O'Neill, Massena; N. D. Parris, Barbadoes; F. S. Patch, B.A., Montreal; H. L. Pavey, London; G. R. Peterson, Toys Hill, Ont.; B. A. Puddington, St. John, N.B.; W. N. Rehfuss, B.A., Bridgewater, N.S.; W. E. Saunders, Woodstock; W Scott, Montreal; W. H. Secord, Brantford; D. Le B. Shaw, Portland; M. R. Slack, Farnham; E. O. Steeves, Upper Sackville, N.B.; F. E. Stowell, Worcester, Mass.; N. W. Strong, B.A., Cambria, Que.; E. A. Taggart, Ottawa; S. B. Thomas, Barbadoes; R. H. Townsley, Montreal; W. Truax, Farnham; G. H. Turner, B.A., Baie Verte, N.B.; J. G. Warren, Montreal; S. G. White, Ottawa; A. Wilson, Russell, Ont.

The valedictory address was read by Dr. F. S. Patch on behalf of the students; and it was replied to by Dr. Frank Buller for the Faculty.

The Dean, Dr. Roddick in his sessional address spoke in part as follows:—

The seventy-fourth session of the Medical Faculty of the University of McGill closes to-day. The number of students in attendance was 421, which with 13 graduate students, makes a total of 434. The graduating class of this year is the largest in the history of the faculty, being exactly one hundred, or seven more than that of 1900-01, hitherto the largest. The graduating class of this year is practically double that of ten years ago, showing that in spite of the enormous competition this faculty is holding its own fairly well.

I regret to have to report that death has been busy in the ranks of both professors and students. The echoes of the convocation of last year had barely rolled away when the sad announcement came that our gifted colleague, Professor Wyatt Johnston, was no more. He died on the 19th of June, 1902, from the effects of a post-mortem wound, incurred in the autopsy room of the Montreal General Hospital. Professor Johnston's loss to this university is well nigh irreparable. In his comparatively short career he accomplished an immense amount. He was a most original thinker, and an indefatigable worker. As a scientific physician he will be longest remembered for his splendid work in connection with bacteriology and its application to public health, for

his methods of diagnosis of diphtheria and typhoid fever, and for his original studies in the field of medical jurisprudence, in which he stood pre-eminent in this country, and perhaps on this continent. As a practical teacher he had few equals. His constant delight was to simplify methods and bring them within the ken of those to whom they would be most useful, whether student or practitioner. His delightful personality made him many friends, both in and out of the profession. He was well characterized by his friend Dr. Ruttan as, "intellectually honest, direct and simple to an unusual degree, he had the greatest contempt for all that savored of dishonesty and pretence in scientific work. His wonderful personal magnetism, his ready wit and sympathy, made him hosts of friends and admirers among those associated with him in the various organizations and societies with which he was connected." Owing to his versatility of genius, his loss has been keenly felt by many scientific associations in this country and in the United States, and by the faculties of comparative medicine and law of this university, with both of which he was more or less directly connected as a teacher.

The Strathcona chair of hygiene, which Dr. Johnston had occupied for a few months only, but which he was busily engaged in equipping at the time of his death, having thus become vacant, it behooved the faculty to look for a suitable successor. As none of our own graduates could be found who had paid special attention to this subject, it was decided to look abroad. After some delay, we were fortunate in securing the services of Professor Starkey, who took over the duties of the chair in January last. We heartily welcome him among us, and have every reason to believe that he will prove a fitting successor to our esteemed ex-Dean Dr. Craik, and Dr. Johnston, both of whom labored strenuously to organize the Strathcona chair of hygiene, and make it worthy of the name it bears.

Although our success as a faculty may appear to be phenomenal, we have still much to be desired in the matter of endowment. I stated in effect, at the last meeting of convocation, that we must either attract at once many more students, or secure additional financial aid from our friends; and in order to enable us to do the work which it would be possible to accomplish with our present facilities, we should have an annual income, over and above the students' fees, of about forty thousand dollars. I have no reason to change that opinion; on the contrary, I would further emphasize it. Our competitiors to the west and south of us are growing stronger every day. The faculties of medicine of Toronto and Trinity Universities have practically completed a scheme of amalgamation. These, singly, were very powerful competitors; but if they join forces their strength will be increased fourfold.

Harvard, Columbia, and Chicago Universities are being practically bombarded with money; and, with their admirable equipment, are certain to attract many Canadians to their halls.

Surely our friends will not stand by and see us outclassed. I have more faith in the wealthy men of Montreal, and believe that as soon as the urgency of our needs is realized, help will be forthcoming.

One of our most immediate needs is a well equipped Maternity. The committee in charge of this work have been very much handicapped. Thanks to our generous benefactor, Sir William C. Macdonald, the site has been secured; but the amount on hand for building purposes is still very inadequate; so that unless additional help be forthcoming, another year will have to elapse before this important and most necessary work can be accomplished. Meanwhile, we must be patient and make the most of our present very imperfect conditions.

The ever-absorbing problem of medical registration still remains unsolved. Owing to the stubborn opposition of a section of the profession in this province, the Medical Act of Canada, providing for the establishment of a Dominion Medical Council, was, as you are aware, recently rejected in the local Legislature, by an overwhelming majority. However, four of the provinces, Nova Scotia, Prince Edward Island, Manitoba, and the Northwest Territories, have passed the necessary concurrent legislation, and I have assurances that New Brunswick will follow within the next week or two. Things political in Ontario and British Columbia have been of late in such a muddle that I doubt if much can be expected from them for the present. With a majority of the provinces in line, I think it will not be unreasonable to ask the Dominion Government to grant permission to bring in an amendment to the original act, allowing those provinces which wish Dominion registration to begin the work. I have reason to believe that this permission will be granted.

Gentlemen of the graduating class: I have nothing to add to the admirable advice given you by Dr. Buller. Go forth on your noble mission. "Let the world be your country, and to do good your religion." Let me ask you to remember your Alma Mater, while it is yet well with you. God speed you; farewell.

ROYAL VICTORIA HOSPITAL.

The ninth annual report of the Royal Victoria Hospital has been issued. The number of patients admitted during the year was 2,814, an increase of 235 over the previous year. There were 1,694 Protestants, 989 Roman Catholics, 105 Hebrews and 26 of other faiths; 1,544 were free patients, 807 public ward patients paying fifty cents per day and 463 private ward patients; 2,074 were residents of Montreal and 740

came from districts outside of the city. The total days of hospital treatment aggregated 70. 609 as against 71,551 the previous year, a decrease of 942 days. The average number of days' stay in hospital per patient was 25.22 as against 27.51 the previous year.

On the 1st January, 1902, there were 173 patients in the hospital remaining from 1901, and during the year 2,799 were discharged, of whom 1,354 were well, 856 improved, 157 not improved, 307 not treated and 125 died; remaining in hospital 31st December, 188.

Of the 125 deaths 26 took place within 48 hours of admission. The death rate for the year has been 4.62 per cent., or, if those dying within 48 hours after admission be deducted 3.62 per cent.

The highest number of patients in the hospital on any one day was 215 on the 11th December, and the lowest was 166 on the 7th August; the highest monthly average was 201, in December, and the lowest 177, in August, the daily average for the year being 193.4 as against 196 for the previous year.

In the Out-Patient department the total number of patients treated was 4,102; the number of visits of these patients aggregated 21,950:— Medical, 9,381; Surgical, 4,547; Eye and Ear, 3,393; Nose and Throat, 3,337; Diseases of Women, 1,292.

The income for the year was $133,771.88, while the ordinary expenditure amounted to $113,193.36, the balance of $20,578.52 being applied in reduction of the indebtedness incurred by the new power house, isolation pavilion, chapel, and other extensions. The increase in expenditure for 1902 over 1901 was 913.16.

The total cost per day per patient was $1.60; the cost per day of maintaining each person in the hospital was 86 cents, and the daily cost of provisions per person was 24 1-3 cents.

The Medical Board has recommended to the governors for appointment to the resident medical staff for the year ending 31st August, 1904, as follows:—

Admitting officer, A. G. McAuley; Physicians, W. W. Francis, G. H. Turner, J. M. McCulloch and Robert King; Surgeons, J. D. Dixon, Dr. L. C. Harriss, H. C. Church and A. L. Lynch; Eye and ear, nose and throat, N. C. Jones; Anæsthetist, J. M. English; Locum Tenens in Surgery, D. W. McKechnie; Locum Tenens in Medicine, A. C. Frost; Externe in Medicine, R. H. M. Hardisty.

WESTERN GENERAL HOSPITAL.

The thirtieth annual report of the Western Hospital has just appeared. During the year 589 patients were admitted, an increase of 193 cases. Of these 341 were Protestants, 228 Roman Catholics, 19

Jews, other religion 1; males, 269; females, 320; 373 were free patients, 52 public ward patients, paying 50 cents or less a day; 63 were semi-private patients paying one dollar a day; 101 were private patients; 547 were residents of Montreal; 42 came for treatment from a distance or were sent from the country districts. 195 were medical cases; 279 were surgical; 115 were gynæcological.

On the first January, 1902, there were 26 patients in the hospital, and during the year 556 have been discharged, of whom 379 were well, 138 improved, 24 unimproved, and 10 not treated; 36 died and 28 remained on the 31st December.

The death rate for the year has been 6.11 per cent.; if those dying within 48 hours after admission be deducted, 4.41 per cent.

The largest number of patients in the hospital at any one time was on July 17th, and the smallest on January 3rd. The highest monthly average was 34 in July, and the lowest 26 in January. The average number of days of treatment in the hospital per patient was 18.6. The total number of patient days was 11,049. The number of ambulance calls for the year was 110.

In the outdoor department the total number of consultations was 6,570, as compared with 2,457 for the previous year. They were made up as follows:—Medical, 2,252; surgical, 1,055; diseases of women, 1,034; eye and ear, 561; nose and throat, 1,008; genito-urinary, 493; skin, 167. The work in this department has increased 267 per cent. in the last two and a half years.

The Maritime Medical Association will be held in St. John, 22nd and 23rd July.

The Brandon General Hospital is to be increased by an addition, which will cost $18,000, and accommodate 32 beds.

The hospital board in Galt are in trouble over a recent bequest of $800. Three of the heirs are contesting the will at law. During the month of May, free patients enjoyed 152 days treatment, and paying patients 393 days.

The jubilee of the University of Bishop's College was celebrated at Lennonxville on the 18th of June. Degrees were conferred in the faculties of Divinity and Arts, and the Governor-General was present to receive the degree of D.C.L. The alumni held a dinner in the evening.

Queen's University medical faculty has decided to celebrate the jubilee in October, at the same time as the principal's installation takes place. The fifty years will not have elapsed till the spring, but it was thought better to have the ceremony take place at the beginning, rather than at the close of the session.

The citizens of Vancouver have subscribed $30,000 for the new general hospital; the city has given $20,000, and as a result the Province now announces that it will contribute $20,000 in addition to these sums. Seven different plans are under consideration for a building capable of accommodating 100 patients and providing for the necessary executive offices, but capable of being enlarged to provide for at least 300 patients with all the appurtenances of a modern hospital.

Smallpox is reported from several districts in New Brunswick, and there is a feeling that the outbreak has not been well handled, particularly in the shore parishes of the county of Kent. Lack of firmness in enforcing quarantine and other precautionary measures is said to prevail. In some parts of Kent county it is charged that great indifference prevails as to needed precautions in preventing the spread of the disease. The people of Westmorland who enforce vaccination and precautionary regulations firmly are appealing to the Government against the indifference displayed by their neighbors.

The following have received their diplomas in Medicine from Laval University:—Andre Brisset, J. C. Bourgoin, D. Bergeron, J. R. Belisle, George Etienne Bedard, Albert Cleroux, D. Chagnon, L. P. Dorval, W. G. Drouin, Edward David, W. N. Godin, J. C. B. Godbout, Joseph Guertin, Horace Gervais, Josaphat Isabelle, Hormidas Larose, J. Lapointe, Albert Larose, A. P. Lachance, J. P. Laporte, Arsene Labarre, Eugene Isatreille, L. P. Marleau, Jos. Melandon, J. H. Meunier, A. Mailler, J. L. Mauffet, W. Ouimet, Lachance Perron, Henri Prevost, Edouard Pelletier, Philippe Quesnel, J. A. Rousseau, J. A. M. Riopel, P. E. Riopel, J. A. C. Riopel, J. E. Racicot, J. A. Robinson, Edgar Smith, J. A. Sabourin, E. Touchette, W. Tetrault, Alexandre Thibaudeau, Hector Viau.

Amongst the other peculiar things that came before the Ontario Legislature during the present session, was an anti-vaccination bill. Mr. Kribs the proposer said, the object was to remove the compulsory clauses of the Public Health Act, and he read several letters from persons who claimed to be permanently injured by vaccination. He

had a petition, signed by 1,271 residents of Galt, which has just had a smallpox epidemic, in favor of his bill. Dr. Currie said the trouble was that there was too much dirty vaccination. Dr. Reaume said he had been vaccinating for 20 years and had yet to see the first evil result. He quoted a bulk of statistics, all favourable to vaccination. Dr. James continued the discussion, claiming that the subject was more properly one for a medical association than the Legislature. The bill was read a second time.

The annual report of the Prince Edward Island hospital shows that the number of patients admitted during the year amounted to 243, seven more than the previous year. The paying patients were 165, being 12 in excess of the previous year; non-paying 78, being 5 less than the previous year. The medical cases were 70, surgical 173, a slight increase on the previous year, 131 underwent operations. There were 183 patients discharged cured, being 12 more than the previous year, while the deaths were 8 as compared with 2 during the previous year. There remained in the hospital 23rd May, 16 patients. The city patients numbered 80, being two in excess of the previous year; country patients 143, or one less than the previous year, while 20 patients came from other provinces. The out-door patients numbered 38, and there were 115 prescriptions and 150 surgical dressings supplied and 23 operations performed for out-door, non-paying patients.

The Medical Society of Nova Scotia, will hold the twenty-fifth annual meeting in Antigonish on Wednesday and Thrusday, July 1st and 2nd, 1903. The following are the officers: Dr. J. Cameron, Antigonish, president; Dr. W. Graham Putnam, Yarmouth, and Dr. M. Chisholm Halifax, vice-presidents; Dr. W. Huntley MacDonald, Antigonish. secretary-treasurer. The public meeting will be given up to the presidential address, and to papers upon tubercular arthritis; pathology by Dr. J. Stewart, Halifax; diagnosis by Dr. A. E. Kendall, Sydney; treatment by Dr. N. E. McKay, Halifax; these will be followed by a discussion in which Drs. J. Hayes, W. B. Moore and others will take part. Dr. W. H. Hattie, Dartmouth, will also read a paper, and Dr. D. A. Campbell, Halifax, will give a history of the society.

The remainder of the programme is as follows:—

Every day questions—Dr. H. P. Clay, Pugwash.

Further remarks on Insomnia—Dr. H. H. McKay, New Glasgow.

Paper—Dr. R. A. H. McKeen, Glace Bay.

Case Reports—Dr. J. S. T. Patton, Truro.

Paper—Dr. Jas. Ross, Halifax.

The buried absorbable suture, its value in surgery—Dr. H. O. Marcy, Boston.

Caesarian Section—Dr. J. Hayes, Parrsboro.

Strangulated hernia with unusual sequelae—Dr. D. Murray, Logan's Tannery.

Extra-uterine pregnancy—Dr. A. E. Kendall, Sydney.

Acute Inversion of Uterus during labor—Dr. C. P. Bissett, St. Peters.

Paper—Dr. J. W. McKay, New Glasgow.

Address in Medicine—Dr. G. G. Campbell, Montreal.

Venesection—Dr. M. Chisholm, Halifax.

Toxic haemoglobinuria with report of case—Dr. J. L. Churchill. Isaacs Harbor.

Paper—Dr. M. A. B. Smith, Dartmouth.

Case Reports—Dr. J. W. Reid, Windsor.

Some notes on milk hygiene and infantile feeding—Dr. E. D. Farrell, Halifax.

Treatment of tuberculosis—Dr. H. M. Neale, Pennsylvania.

Nasal tumors—Dr. G. Cox, New Glasgow.

Further remarks on mastoiditis—Dr. W. G. Putnam, Yarmouth.

Some notes on recent epidemic of smallpox—Dr. J. F. Ellis, Sherbrooke.

The Ontario Medical Association held its 23rd annual meeting on the 16th, 17th and 18th of June, and elected officers as follows:—President, J. W. Ross, Toronto; vice-presidents, Dr. Burt, Paris, Dr. Turnbull, Goderich, Dr. J. C. Connell, Kingston, Dr. J. H. Elliott, Gravenhurst; secretary, Dr. C. P. Lusk, Toronto; treasurer, Dr. A. R. Ogden, Toronto.

Dr. J. C. Mitchell, Toronto, read the annual address, and amongst those who presented papers were: Drs. Geo. A. Bingham, Toronto; Herbert A. Bruce, Toronto; H. B. Anderson, Toronto; T. W. G. McKay, Oshawa; John Caven, Toronto; Hugh McCallum, London; J. C. Connell, Kingston, and J. L. Davison, Toronto.

The other papers on the programme were: The Business Aspect of Modern Practice, by Dr. N. A. Powell, Toronto; Exercise in the Treatment of Chronic Diseases, Dr. A. McPhedran, Toronto; The Treatment of Pneumonia, Dr. J. H. Musser, Philadelphia; The Diagnostic Significance of Albumen in the Urine, Dr. J. Amyot, Toronto; Sanitorium Treatment of Tuberculosis, Dr. C. D. Parfitt, Gravenhurst; and X-rays in Sarcoma, Dr. C. R. Dickson, Toronto.

The thirty-sixth annual meeting of the Canadian Medical Association will take place at London, Ontario, on the 25th, 26th, 27th and

28th of August, with Dr. Walter H. Moorhouse as president. Dr. George A. Hodge, Queen's Avenue, is chairman of the Programme Committee, and Dr. Hadley Williams, Park Avenue, is local Secretary, to either of whom, or to the general secretary, Dr. George Elliott, 129 John St., Toronto, titles of papers may be sent. Arrangements for reduced fares on the regular Standard Certificate plan have been already completed with the Grand Trunk and Canadian Pacific Railways, and negotiations are in progress with the Intercolonial and the Canadian Pacific officials as to transportation rates from the Maritime provinces and points west of Fort William. These arrangements will be published in full in due time. Entertainment is in the hands of a strong committee. The meetings will take place in the Normal School buildings.

The seventy-first annual meeting of the British Medical Association will be held at Swansea on July 28th, 29th, 30th, and 31st. Mr. Walter Whitehead of Manchester, will be succeeded in the office of President by Dr. Thomas Dryslwyn Griffiths of Swansea. The address in Medicine will be delivered by Dr. Frederick T. Roberts, and that in Surgery by Mr. A. W. Mayo Robson. The scientific business of the meeting will be conducted in eleven sections: Medicine—President, Sir Isambard Owen; Surgery—President, Mr. Edmund Owen; Obstetrics and Gynæcology—President, Professor William Stephenson; State Medicine—President, Dr. John C. McVail; Psychology—President, Dr. Robert Jones; Pathology—President, Professor D. J. Hamilton; Ophthalmology—President, Mr. H. E. Juler; Diseases of Children—President, Mr. W. Arbuthnot Lane; Laryngology and Otology—President, Dr. P. Watson Williams; Navy, Army, and Ambulance—President, Inspector-General H. C. Woods; Tropical Diseases—President, Dr. G. H. T. Nuttall.

In the Section of Surgery the subjects selected for discussion are: the methods of intra-abdominal anastomosis, and the treatment of advanced tuberculous disease of the knee-joint. In the Section of Obstetrics and Gynæcology two discussions will be held; one on the management of pregnancy complicated with uterine fibroids, and the other on the diagnosis and treatment of tuberculosis of the uterus and adnexa. In the Section of State Medicine the subjects selected are the Vaccination Acts and small-pox prevention, the prevention of river pollution and and of sea-shore pollution, and food poisoning and adulteration. The subjects selected in the Section of Psychology are the pathology of general paralysis, alcohol in its relation to mental diseases, and the care and treatment of incipient insanity. In the

Section of Pathology there will be a discussion on splenic anæmia. In Ophthalmology the subjects selected are eye changes in relation to renal disease, conical cornea, and the treatment of strabismus. In the Section of Diseases of Children the subjects chosen are chorea, congenital dislocation of the hip, and the relation of tuberculosis in children to bovine tuberculosis. In the Section of Laryngology and Otology there will be discussions on malignant disease of the larynx, on operations on the temporal bone in suppurative middle-ear disease, and on the upper respiratory tract as a source of systemic infections.

Retrospect of Current Literature.

MEDICINE.

UNDER THE CHARGE OF JAMES STEWART, F. G. FINLEY AND H. A. LAFLEUR.

The Micrococcus of Acute Rheumatism.

E. W. Ainley Walker. "The Micrococcus of Acute Rheumatism." *The Practitioner*, February, 1903.

It is gratifying to find that the work upon the etiology of Rheumatism from the bacteriological standpoint, begun in 1875 by Klebs, is bearing much fruit. The results of Triboulet, Westphal, Wassermann, Malkoff, and Paine and Poynton, in 1899, have been reviewed in this Journal. The work done by Drs. Walker and Beaton is along the same line and is cofirmatory of the more recent work by Paine and Poynton and that by Fritz Meyer. They find a streptococcus, indistinguishable by ordinary methods from an ordinary streptococcus. It appears often as a diplococcus, and hence some confusion concerning its identity may have arisen.

In attempting to answer the question whether this is an ordinary streptococcus or a specific organism, Beaton and Walker on two occasions made application of Marmorek's test that all streptococci save that perhaps of scarlet fever, refuse to grow in filtered culture-fluid, in which a streptococcus has been previously grown and filtered out with the result of an abundant growth. Thus it is claimed that the micrococcus under discussion is "specifically different from the streptococcus," although they are not over sanguine in this matter. Five problems are suggested for investigation. (I) That of specificity; (II) If bacteral specificity, is there toxic specificity ? (III) The pathway of infection (Tonsils, pulmonary area); (IV) A specific therapeutic agent.

Recurrent Vomiting in Children.

DAVID L. EDSALL, M.D. "Recurrent Vomiting in Children." *American Journal of Med. Sciences,* April, 1903.

Recurrent, periodical or cyclic vomiting in children is a subject upon which now and then one finds an article. The nature of the disorder is not understood and the treatment is ineffectual. To a neurosis or a gouty or uric acid diathesis, the attacks have been attributed. Dr. Edsall finds in five cases that "a severe acid intoxication of the type seen in diabetes mellitus was present during the attacks and in the intervals, and that treatment directed towards this intoxication has been remarkably satisfactory. Acetone and diacetic acid have been in the urine of such patients at the time of the attack. Large doses of sodium bicarbonate have been successful in either aborting the attack or averting it completely.

In the treatment of such cases it is recommended that large doses, 100 grains of sodium bicarbonate or citrate, and even more should be given as rapidly as possible.

Some Experiments on the Nature and Specific Treatment of Hay Fever.

SIR FELIX SEMON, C.V.O., M.D., F.R.C.P. "Some Experiments on the Nature and Specific Treatment of Hay Fever." *The British Med. Journal,* March 28, 1903; April 18, 1903.

Since the publication of Professor Dunbar's pamphlet on the Cause and Specific Treatment of Hay Fever, in 1902, views upon this subject somewhat more scientific in character have been entertained. Prof. Dunbar succeeded in isolating from the pollen of certain grasses, a toxic substance which when applied in very small quantities to the eyes and nostrils of people predisposed to hay fever, produced, more or less characteristically, the symptoms of hay fever. When so applied to those not predisposed it failed to induce symptoms. The same investigator succeeded in producing an antitoxin in experimenting with the pollen of rye, maize, and other grasses, which quelled the symptoms of hay fever artificially produced.

The toxic substance is in all probability a proteid. It is not the ethereal oil of any of the plants regarded as inducing hay fever.

Sir Felix, with the aid of Prof. Dunbar's assistant, Dr. Prausnitz, carried out independent experiments upon those liable to hay fever and those on whom no susceptibility was known to exist. At the same time the antitoxin was employed in those cases where the toxic manifestations developed.

The results, which must be regarded as altogether preliminary, are about as follows:—The pollen of certain grasses when extracted yields a

toxin which instilled into the eyes or nostrils of susceptible individuals induces symptoms of hay fever, variable in intensity, and it fails to do so altogether when those not susceptible are so treated. The antitoxin experiments corroborate those of Dr. Dunbar, showing that in some instances the effects of the antitoxin appear to be sufficient to prevent a reappearance of subjective symptoms. More is anticipated upon this most interesting and important subject, especially as it deals with the treatment of hay fever. *W. F. H.*

On the Diagnostic Value of the Position of the Head in Cases of Cerebellar Diseases.

Dr. Frederick E. Batten of London contributes to the Spring number of *Brain* of the present year a valuable paper on the above subject.

In six cases which he had the opportunity of investigating pathologically, a characteristic position was present in three, while in the remaining three no special position of the head was assumed.

The special position described is one where the face is turned towards the side of the lesion and where the ear approximates to the shoulders on the side opposite to the lesion. The former is the same result that happens when one lobe of the cerebellum is experimentally removed, while the latter (the approximation of the ear to the shoulders in the side opposite to the lesion) is the reverse.

In estimating the diagnostic value of this symptom, Dr. Batten considers that it is worthy of special value, but probably less so than either disturbance of coordination or weakness. It is not likely if alone present as a localizing symptom to be of any distinct value, but when present in conjunction with other symptoms pointing to this situation, then it is of considerable worth.

SURGERY.

UNDER THE CHARGE OF GEORGE E. ARMSTRONG.

Clinical Remarks on the Results of Operations for Strangulated Hernia.

Arthur E. Barker, F.R.C.S., Eng. "Clinical Remarks on the Results of Operations for Strangulated Hernia." *Lancet*, May 30, 1903.

The clinical remarks are drawn from a consideration of tables made up by the Surgical Registrars of the University College Hospital, being a very careful analysis of this condition, and consisting of 406 consecutive cases.

With reference to the frequency of operation for strangulation, the tables show that for the last 10 years the number is just twice as great as 20 years ago. This may be partly explained by the fact that in the severer forms of strangulation taxis has not been lately so frequently

performed as formerly on account of the high mortality attending this method alone being employed (13 p.c.). So high, indeed, has been the mortality after the strangulation was relieved by taxis alone, that the writer believes it ought never to be employed "except in the very recent cases and among aged patients in a state of great weakness." The gross mortality following operation is given in the report as no less than 31.2 per cent., but it is encouraging to note that whereas in the first series of cases the mortality was 53 per cent., during the last four years it was reduced to 18 per cent. That this great reduction is not due in any very marked degree to the cases being operated upon earlier is shown by the fact that "the number of cases in which the condition of the patient and the bowel was so bad as to forbid anything more in the opinion of the surgeon than an artificial anus being made, remains almost equal.....and was exactly the same for the first and penultimate." The cause of death in the great majority of cases was due either to perforation or to a general peritonitis spreading from the reduced gut without any apparent perforation. This leads to the question of how best to treat the damaged gut; whether to bring out the damaged portion and establish an artificial anus to be closed later, or to remove the entire portion and perform an end to end anastomosis at once. Inasmuch as there were only two successful cases of artificial anus in the whole series prior to 1899, and that from then to the end of Marh, 1903, three cases of artificial anus resulted in two deaths—66 2-3 per cent.—while for the same period seven cases of primary enterectomy gave four deaths—57 per cent.—and that "as to the condition of the gut in each case we can speak with confidence, it was hopelessly damaged," the writer believes "that in primary enterectomy in selected cases we may in the future have the means of reducing our mortality still further." Indeed he goes so far as assuming that these cases treated by primary enterectomy would all have proved fatal had a simple herniotomy or an artificial anus operation been performed. There are some cases in so collapsed a condition as not to justify the hope that any long operation will save them, and these would have to be treated by the formation of an artificial anus. *W. L. B.*

OPHTHALMOLOGY.

UNDER THE CHARGE OF FRANK BULLER

The Use of X-Rays in Ophthalmic Surgery.

Mayou. "The use of the X-ray in Ophthalmic Surgery." *Lancet, Feby, 28, 1903.*

Sydney Stephenson and David Walsh. *Lancet, Jany. 24, 1903.*

The X-rays set up a leucocytosis with an absolute minimum of des-

truction of epithelial and other tissues. This leucocytosis can vary in degree from very slight to great severity, and further, this leucocytosis is much more prolonged than in any method previously adopted and the destruction is not nearly so great. The action of the rays with due care and experience, can be kept under almost perfect control. Granules disappear very rapidly under X-rays, but operative methods which have the additional advantage of removing the diseased tissue must in some cases be preferable, such operations can be followed by X-rays to complete the work in preferance to one of the other irritants now in use. Operation, however, should not follow X-ray treatment without a considerable interval.

Mayou in his treatment at first used a mask for the face, but has since discarded it, as he never exposes the patient sufficiently to get any reaction in the skin.

In trachoma, the upper eyelid is everted and the lower lid pushed up so as to cover as much of the cornea as possible, except in bad cases of pannus, when the cornea is exposed. The patient is seated nine inches from the anode with a moderately soft tube and a current of six amperes. Two minutes exposure is given on from four to six successive days, the limit of four being for acute cases. A week's rest ensues, when, if no reaction occurs, the treatment is repeated twice a week until there is a slight increase in the photophobia, about this time the granulations begin to disappear and exposures once, twice or thrice weekly are kept up until they disappear entirely. When they have disappeared, all treatment must be stopped until the infiltration set up by the X-rays has gone. The result is an unscarred, noncicatricial conjunctiva.

The pannus is also greatly improved by the treatment. The most suitable cases are those with the chronic granular conjunctivitis. Acute diffuse infiltrations, with much thickening of the lids and photophobia require more careful exposures extending over a longer period. Mayou mentions that he had no trouble with the globe following X-ray treatment and cites a case of rodent ulcer of the lid in which the treatment was continued for six months and in which the only disturbance was a conjunctivitis. Mayou's experience covered fifteen cases, Stephenson and Walsh four. The four were children with typical severe hypertrophic trachoma, three having corneal complications. Stephenson and Walsh's employed a "hard" focus tube with the anode at a distance of eight inches from the eye and an average exposure of from ten to fifteen minutes. The average current strength was five amperes and twenty to twenty-five volts. They found it was not necessary to evert the eyelids, they also use a mask of lead foil for the face. The cures resulted after sixteen to seventeen applications.

These writers also report the cure of a case of trachoma by the high frequency current.

The rapidity of the cures and the painlessness are the great points in favour of this treatment, if further results bear out these favourable reports.

Paraffin Injection after Enucleation of the Eye-ball.

A. Maitland Ramsay. "Paraffin injections after enucleation of the eyeball." *Lancet, Jan. 31, 1903.*

Oatman. Plastic artificial vitreous in Mule's operation. *Medical Record, March 7, 1903.*

Ramsay divides the conjunctiva as closely as possible to the corneal margin, each rectus muscle is caught up on a strabismus hook and sutured with catgut to the superjacent conjunctiva, the tendons are then cut at their insertion into the sclera, and the eye then removed in the ordinary way. Hæmorrhage being stopped, the capsule of Tenon is packed with gauze until a strong black silk purse suture has been passed around the conjunctival margin, when the gauze is removed, and the melted paraffin injected filling the cavity to overflowing.

The purse suture is now drawn tight and knotted and then the catgut ligatures are tied, that from the superior rectus to the inferior, and that from the external to the internal rectus. The strictest asepsis must be observed. The excess of paraffin is wiped away, and after the conjunctiva has been bathed with boracic acid lotion, a compress and bandage is applied. The purse string is removed in fourteen days, and later an artificial eye may be inserted over the movable stump.

Oatman eviscerates as in Mule's operation, but instead of inserting a metal or glass sphere into the scleral cavity, he inserts a paraffin ball. The paraffin is brought to the boiling point, then cooled rapidly to prevent crystallization and the formation of bubbles. A ball is now roughly shaped with a knife and is brought to the required size by putting it on a long needle and rotating it in the flame of an alcohol lamp, the action of the flame being controlled by occasionally dipping the ball into a cold bichloride of mercy solution. The sclera must be sutured tightly so no paraffin may exude.

The plastic nature of paraffin will allow it to mould easily to the shape of the glass eye, and ulceration from pressure is not apt to occur.

Methylene Blue in Diseases of the Eye.

Jacqueau. "Methylene blue in diseases of the eye." *Allgemeine Weiner Med. Zeitung, 1903, 5.*

Solutions of 1,1000 have a markedly curative action in corneal lesions

with or without formation of ulcers or abscesses. The solution is instilled twice daily. Courmont averted the ocular complications of smallpox by irrigating the eyes with this solution.

Rollet uses 2:1000 solutions, as subconjunctival injections in iritis complicated with hypopyon. In blennorrhœa pain is much lessened.

Leprince in three cases of epithelioma of the lower eyelid obtained complete recovery by painting the lid twice daily with 1:120 solution of arsenious acid and 1:100 solution of methylene blue. It is important to get pure methylene blue, as most preparations contain as impurities zinc and arsenic.

Internally, methylene blue is used in pill form 0.20 grammes twice or thrice daily. For subcutaneous injections a sterile five per cent. solution is used. Toxic effects are unlikely. (I have found the crayon of methylene blue of great service in infiltrated ulcers—J. W. S.)

Asepsis and Prophylaxis in Ophthalmology.

Panas. "Asepsis and Prophylaxis in Ophthalmology." *Archives d'Ophthalmologie, Jan. 1903.*

This communication in addition to its intrinsic value, is of sad interest as being the last production of this acute and talented observer.

In preparing an eye for operation, he first washed the lids with sterile water and soap, after which he rubbed them over with cotton containing a small amount of ether. Then, they were rubbed with sterile cotton saturated with an oily solution of iodide of mercury four parts to one thousand. In cataract extractions this is done the night before, and the eye covered with sterile gauze and a bandage. At the operation the eye is irrigated with 4 per cent boric acid solution, or 1:5000 of perchloride of mercury solution, or 1.1500 borycyanide of mercury solution.

Foreign bodies, except where accessible, should not be removed until the eye is quiet, unless persistent symptoms of glaucoma are present. Of local antiseptics, the best is methyl violet 1.500 solution.

In plastic and suppurative affections of the globe, general treatment is important, mercury administered by inunction or injection being of great value.

Serum therapy is of marked service in diphtheritic opthalmia and serpiginous ulcer; antipneumococcic serum being used in the latter condition, as it is generally due to pneumococcus infection. Where serum treatment is not available, an attempt should be made to free the organism from toxins by means of the natural passages.

J. W. Stirling.

Society Proceedings.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

Eleventh Meeting, June 5, 1903.

H. S. Birkett, M.D., President, in the Chair.

Dr. C. B. Keenan showed a living case of multilocal cystic tumour of the lower jaw. The case was reported in the June number of this Journal.

Drs. E. W. Archibald and C. B. Keenan showed a living case of sarcoma of the lower jaw.

Dr. Adami said they had that evening two most interesting cases of relatively benign tumours affecting the lower jaw and evidently there was still very much to be learned about the malignancy of those tumours. On the one hand the myeloid tumours such as that presented by Dr. Archibald were found to be truly benign, and in those cystic tumours an example of which Dr. Keenan had brought before the Society, they had a certain amount of myeloid sarcoma. They were benign, yet might form metastases, and he suggested that the material obtained should be most carefully studied to see what relationship there was to malignancy.

Dr. Hutchison said the subject was very interesting from a clinical point of view; they had heard a good deal about the sarcomatous element in them, and to the clinician that was really the important point, whether the disease should be interfered with at all, whether that interference should be limited entirely to the growth, or whether a wide margin of safety should be sought. To the patient the question of malignancy was important, as a too adequate removal left the patient with a facial blemish or deformity, and on the other hand the possibility of recurrence was to be considered. In two cases on which he operated he had this difficulty to face, and he decided on a fairly conservative operation; the patient had had no recurrence and he felt that rather a conservative view should be taken.

Dr. Keenan said that in his case the patient had refused operation but he hoped some time to open up the tumour and see the inside; he would not advise an extensive operation until full microscopical examination had been made. The consensus of opinion was that in such a case scraping would be sufficient. He had a case a year ago of myeloid sarcoma in which scraping was done and up to that time there had been no recurrence, though it might be a little early to draw conclusions.

Dr. MacTaggart submitted an autopsy report on a case of status lymphaticus. It was published in the June number of this Journal.

Rupture of the Spleen.

Dr. James Bell and Dr. Dickson showed a living case of rupture of the spleen and gave the following report:—Anastasia Torvas, a schoolboy aged twelve, was admitted to the Royal Victoria Hospital on 3rd April, 1903, between 2 and 3 o'clock in the afternoon with the following history:—

On the previous day, April, 2nd, after being released from school about 2.30 in the afternoon, he and some companions were descending to the basement of the school-house, when he fell upon the stone steps. He is said to have become unconscious at the moment, and was probably in a condition of syncope. On recovering he suffered very great pain and was unable to help himself. He was assisted to his home by his companions and at 5 o'clock commenced to vomit. He had a bad night, suffering much pain, and was brought to the hospital on the following day. On admission he was very pale and somewhat confused; the abdomen was much distended and tender, and he complained bitterly of pain on any movement of the body being made. His temperature was 101, his pulse 136 and respiration 36. In spite of the history the condition suggested acute general peritonitis. I first saw him at 8 o'clock the same evening. The condition was then much as above described, but there was a marked tenderness at the costal margin and over the lower ribs on the left side. What impressed me particularly at this time was the extreme pallor, pain and tenderness over the splenic region. I did not think that it was peritonitis so I ordered fomentations and enemata, and saw him again at 8 o'clock the next morning. There was then still greater tenderness and pain over the splenic region extending well up into the axilla, and the patient was still pale. The probable diagnosis of rupture of the spleen was then made. At 2 p.m. the abdomen was opened in the middle line below the umbilicus, and between two and three quarts of dark clotted blood were found lying between the coils of intestines and in the pelvis. This was removed and the wound closed. On exploration no fresh blood was found and no evidence of a bleeding point could be found in the mesentery or liver. The spleen was not brought into view and palpation did not show any lesion of its under surface. It was, however, hard and firm. The boy made an uninterrupted recovery was free from pain from the time of the operation, and with the exception of his being averse to taking food for the first four days, there was nothing special to record. The temperature reached normal on the 4th day and he was discharged on the 21st day after operation.

Complete Transposition of the Viscera.

Dr. Fry:—In April, 1903, there came to Dr. Martin's out-door service in the Royal Victoria Hospital, Emma M., aged 15, complaining of cough. Her card showed that in September, 1901, she had come on account of the same symptom, when Dr. Martin found the physical signs of a slight sub-acute bronchitis and recognised a complete transposition of the viscera. Her cough had disappeared until this Spring when a recurrence brought her back for advice.

She has had perfect health since 1901 till a week or two ago when slight cough appeared. Her family history is irrelevant. On close questioning one elicits no complaints referable to her anomaly. At two years of age she had measles and shortly after diphtheria was passed through without complications. She never had acute rheumatism, nor scarlet fever.

She is of good nutrition and color. On inspection of the chest one sees, under the right breast, a heaving diffuse impulse which extends in the fifth space to a point 3½ inches to the right of the median line. Palpation reveals a strong systolic thrill over the entire heart, but more marked at the base, especially over the third right cartilage. On percussion relative dulness is found in the vertical direction at the third right rib, while at the fourth rib there is absolute dulness which extends towards the left, to the right border of the sternum. Upon auscultation, a loud, very rough systolic murmur is heard at all points, but louder towards the base and definitely loudest at the third right cartilage. There is pulmonary accentuation. The pulse is normal. The lungs give no abnormal signs except a few moist bronchial rales. On the anterior aspect of the chest vocal fremitus is more marked on the left side (transposition of the lungs).

The liver is readily outlined by percussion, on the left side, absolute dulness beginning at the upper border of the sixth rib and extending to the costal border. A hand's breadth of dulness under the ninth and tenth ribs in the mid axilla on the right represents the spleen. Percussion of the stomach proves the fundus to be to the right and the pylorus to the left side.

The abdominal and thoracic viscera then are transposed; that is, one has to do with an example of the less rare or "complete" variety. The condition has not produced any symptoms. It is interesting that there is, in addition, a purely cardiac congenital anomaly. As we have seen there are no cardiac symptoms and no signs of disturbed compensation; while there is no evidence of pericarditis or endocarditis. The very marked thrill and rough murmur, both systolic and of maximum intensity, over the pulmonary valve, lead one to diagnose pulmonary

stenosis. This, and defect of the inter-ventricular septum are the commonest congenital defects, and they are found combined relatively frequently.

The possibility of the co-existence in our case of a defective septum suggests itself, though the fact that there is no history of her having been a "blue" baby, and that she has had no chronic circulatory or respiratory difficulty, proves there is no extensive defect in the septum. For the same reasons there cannot be a large patent foramen ovale or a patent ductus arteriosus.

In the literature there are between two hundred and three hundred cases of transposition of the viscera, Pick, up to 1895, finding record of 190 cases. Only thirteen examples of partial transposition are recorded. In speaking of the latter one does not refer to cases of acquired dextro-cardia in which fibrous adhesions between the heart on the one hand and the mediastinum, the lung, or the pleura, on the other, lead to displacement of the heart.

A much larger proportion of the cases are now recognised during life than previously, largely owing to the fact that a larger proportion of chests are now examined than used to be the case. In 1865 Gruber found 79 cases in the literature, of which only five or six had been discovered during life. Arneill (Amer. Journ. Med. Science, Nov. 1902) recently collected 44 cases, of which 38 were recognised during life. The first recorded case was published by Petrus Servius in 1643. In Montreal, Dr. MacCallum described a case in the late Dr. R. L. McDonnell's service in 1850, and recently cases have been observed by Dr. Lafleur and the late Dr. Grafton.

Sarcoma of Leg.

Dr. J. Alex. Hutchison reported a case of sarcoma of the fibula followed by paraplegia:—

F. H., aged 17, married, August 1901, no children, was admitted to my service in the Montreal General Hospital complaining of pain and swelling of the right leg. About December 15th, 1902, patient noticed slight swelling of the right leg half way between the knee and ankle on the outer side. At first it was painless, but pain soon developed. There was no history of injury at any time and the growth was very rapid. By January 3rd, 1903, she had to take to bed as she was unable to walk. There was loss of function of muscles, especially extensors and peronei, with tingling of foot and toes and partial anæsthesia of toes and dorsum of foot. The veins on outer side of leg became prominent, and general œdema of leg and foot appeared. The treatment up to the time of admission was fomentations and morphia.

Present Condition; March 16th, 1903:—Patient is a young woman of small size. The face is very pale, and shows great emaciation; mucous membrane, pale, no jaundice; cervical glands palpable on both sides. The inguinal glands are readily palpable, but do not show any more enlargement on right than on left side. The thyroid glands show moderate amount of general enlargement.

The right leg and foot are greatly swollen. The skin is tense and glistening, and shows some large prominent veins over the region of the upper third of the fibula. There is great œdema and cyanosis sharply delimited by the knee joint. Above the knee the limb is small and atrophied. The maximum diameter is about 6 ins. in striking contrast to the other leg with a diameter of less than 3 ins. No localized mass can be felt, or deep fluctuation made out, and no crackling. The limb is not very tender, but considerable pain since admission of aching character.

The skiagram showed the tibia apparently normal. The fibula showed evidence of absorption near the upper end, but the outline could be traced throughout. There is a shadow suggesting some mass at junction of middle and lower thirds.

On diagnosis of periosteal sarcoma the thigh was amputated on March 19th. The pathological report was small round celled sarcoma.

After the operation the patient experienced great relief from pain and the weight of the affected leg, and recovered well with primary union in the wound. The sutures were removed on the 29th, ten days after operation.

On March 30th the patient complained of very severe pain in the lumbar region, and pains shooting down the left leg and into the stump, so severe that morphia was required to control them.

April 1st. Patient developed retention of urine, and paraplegia with anæsthesia of legs.

April 3rd. Anæthesia reaches level about 2 ins. above symphysis pubis. Knee jerks absent, abdominal reflexes absent.

April 4th. Patient was seen by Dr. Shirres who found, in addition to the above, that there was a reaction of degeneration in the paralysed muscles and dissociated anæsthesia, sense of touch remaining while that of heat and pain were lost.

April 5th. Patient developed rectal and vesical incontinence. Examination of chest failed to show any evidence of recurrence in the lungs.

April 6th. Patient was seen by Dr. Lafleur who suggested a transverse myelitis as the probable lesion.

April 7th. Zone of anæsthesia has risen to 1 in. above umbilicus in front and corresponding level behind.

Condition is thought to be one of recurrence of the disease in the cord, with no hope of further improvement, and patient was removed from the hospital.

Dr. Abbott showed the specimen and supplied the following note:—Specimen 864, Sarcoma of Leg. This specimen when received showed the right leg with lower part of thigh and foot attached. A slice had been removed from the upper two-thirds of its outer surface, the sections passing in its whole extent through the shaft of the fibula. On mounting for the museum the thigh was removed at the knee, and the distal half of the foot cut off.

The leg is enlarged in its upper portion. The cut surface shows the head and shape of the fibula clearly demarcated from the surrounding tissue but infiltrated with soft material, hæmorrhagic in parts, all osseous tissue having disappeared from the anterior margin and lower third of the cut surface of the shaft. The muscular tissue on either side is transformed into a laminated strioma, between the layers of which soft yellow tissue is seen. A band of fibrous tissue running parallel to the posterior surface of the fibula is possibly the intermuscular fascia. Neither the bones of the foot cut through, nor the upper surface of the tibia exposed show invasion by the growth to the naked eye.

Election of Officers.

The nomination of officers resulted in the re-election of all the officials, chiefly on the ground that under the new rules the present incumbents who were elected last January, would otherwise only occupy their places for half a year, as the year in future begins in October. The officers are:—President, H. S. Birkett; vice-president, J. A. Macdonald; secretary, A. MacKenzie Forbes; treasurer, A. T. Bazin; trustee, F. J. Shepherd.

June 19th, 1903.

H. S. Birkett, M.D., President, in the Chair.

Dr. Hill, at the request of Dr. Hutchison presented an apparatus constructed by Dr. Lewis of Paris, and owned by Dr. F. Monod. This instrument was constructed so as to obtain separate specimens of urine from the two ureters.

Dr. Archibald thought this instrument marked a great advance, as everyone knew the difficulty in obtaining specimens of urine by catheterization of the ureters. Many urine separators had been devised, but none of them had brought the urine from the bladder in that way.

Dr. W. F. Hamilton reported a case of septico-pyæmia (staphylococcus infection); The patient came under his care a few weeks ago, complaining of severe pain in the stomach, loss of weight, weakness and occasional nausea. When admitted, he gave a history that four weeks previous he had an attack of illness, characterized by severe abdominal pain, referred to the right side and of such a character as led to the diagnosis of appendicitis. No vomiting occurred and there was no localization of pain. Shortly after the attack the pain or rather distress shifted to the epigastrium. He had been troubled with indigestion for several years, never marked by vomiting, and meat gave him less trouble than other food. The pain did not come on till about two hours after eating and sometimes a drink of water gave relief. On being admitted his condition was febrile, with great weakness and some abdominal tenderness on palpation. On careful examination nothing could be made out, which would assist in a diagnosis of the condition. It was thought in the beginning that he had some alteration in the breath sounds, and a few adventitious sounds were heard in the base of the right lung posteriorly; this was constantly present and increased in intensity. To further the diagnosis, blood examinations were made, and they found they had to deal with a condition which was well characterized as secondary anæmia without leucocytosis. The appearance of the patient was not unlike that presented in pernicious anæmia. The blood count showed 3,000,000 red cells, 4,600 leucocytes with a hæmoglobin percentage of 55. The temperature for many days was febrile and of a negative type, 97, 102, 103, 104; slight albuminuria, but at the beginning no casts. Dr. Hamilton's impression was that it was a case of early cirrhosis of the liver, or a case of tuberculosis. The after-events of the case showed that they had a pleurisy with effusion in the right side, also in the left, and finally, manifest ascites of rather a high degree. Further investigation of the case revealed the presence of staphylococci, which Dr. Bruere termed the staphylococcus pyogenes aureus. These were found in the fluid taken from the right side on two occasions, and also by exploratory puncture, from the peritoneum. Further examination of the blood was made, and the same micro-organism isolated in pure culture from the blood taken from the median basillic vein. Up to that time the view that a peritonitis was present was entertained, and on the ascitic fluid giving the same findings as that of the blood in the thorax, they thought there was a general staphylococcus infection and treated the patient with a view of removing this fluid containing the toxines and probably some of the bacteria. The temperature fell almost immedately after the withdrawal of a large amount of fluid. In the height of the condition they had to do, not with simple albuminuria but

with casts and a number of cylindroids in the urine. The kidneys at that time were more involved and possibly the mode of elimination by the kidney of the organism was the means of bringing about that involvement. He had yet to make subsequent examinations of the blood before the patient left the hospital. The urine had not been carefully investigated from a bacteriological standpoint. The discussion concerning the bacteriology of arthritis was interesting, as they had to do with two attacks of arthritis in the right ankle. At the time of reporting the case the patient was in a comparative state of well-being; there was still some fluid in the right chest and dulness at the two bases. They could not define the source of entrance, but it was worth noting that it was not infrequent to find that form of infection with cholecystitis and cholelithiasis. In his case there was no evidence of any such condition from the history, no jaundice, no recurrent attacks of colic, which one might put down as hepatic.

Dr. Lafleur remarked, that, seeing there was effusion in both sides and subsequent peritoneal effusion, one might think it a case of pleuro-peritoneal tuberculosis, and he emphasized the necessity of bacteriological examination of the blood in all such cases.

Dr. Hamilton replied that tuberculosis had been thought of. This formed one of a series of cases, which Dr. Bruere and he were studying with a view of determining the cells in the effusions of serous sacs. Before a blood examination was made, it had been found that the cells were endothelial and polymorphonuclear as opposed to the lymphocytes in tubercular lesions, and from that it was concluded to be an inflammatory process other than tuberculosis.

Dr. Birkett showed a living case of tuberculosis of the pharynx, which he said was of considerable interest to the general practitioner and interesting also because of its rarity. A boy, aet. 15, son of a farmer, came to hospital last November, on account of difficulty in breathing through the nose. On examination of the throat he found the lateral walls of the pharynx infiltrated with two enormous masses on either side; this had the appearance of granulation tissue whose granulations were soft, almost resembling frog-spawn in color and consistency. The surrounding structures and mucous membrane were extremely pale. On examining the naso-pharynx one found the upper surfaces of the soft palate and the lateral walls of the naso-pharynx infiltrated with this same tissue, to such an extent that the boy absolutely could not breathe through the nose. The personal history was negative. The family history showed that three uncles on his father's side and one brother had died of tuberculosis, and the boy himself occupied the room in which the brother had died. The general system was negative; lungs absolutely normal, any secretion from the throat coughed up was abso-

lutely negative, and all that could be found in a general way was a slight enlargement of the glands beneath the lower jaw. The temperature was normal.

Three problems arose as to the condition; (1) inherited specific disease, (2) tuberculosis; (3) malignancy. The first was negatived by the absence of any other corroborative symptoms; eyes showed no keratitis, and the teeth no specific appearance. As to malignancy, the rarity left it to a great extent doubtful. The patient was placed under ether, and the large mass removed and submitted for microscopical examination. The local appearances of the throat were against malignancy, the granulation being of a rather indolent type, and no infiltration of the surrounding tissue. Examination under the microscope proved the existence of typical giant-cells, and the bacteriological examination revealed the presence of a few tubercle bacilli. This removed mass was also injected into guinea pigs with aseptic precautions; one died from a septic peritonitis, the other lived for about two months, getting fat and well, then suddenly died from some unknown cause. Tuberculin was used and the chart showed the typical reaction, locally as well as general, the granulations becoming intensely hyperæmic as also the surrounding mucous membrane. The question of treatment naturally came up. The infiltrated masses were excised; after curetting and rubbing in a strong solution of lactic acid but little progress was made. The x-rays were then tried, consisting of an ordinary coil and lamp applied directly through the mouth, having the face protected by means of a screen, with a central perforation; this was covered with some eleven coats of white lead; before this there was some definite dermatitis. He had 33 sittings, each lasting for a period of ten minutes, the tube placed at a distance of about 10 in., and a current of 110 volts and 2 to 3 amperes used. The infiltration had practically disappeared, leaving the posterior lateral walls of the pharynx quite smooth. The enlarged glands probably would be removed on his return in a cople of months.

Dr. Keenan, in reply to Dr. Fry, said that an autopsy had been made and no lesions found; cultures of the heart blood were sterile. He had noted very often in the treatment of lupus as well as tuberculosis with the x-ray that a secondary involvement of the neighbouring glands seemed to take place, and those already involved to have increased.

Dr. White showed for Dr. Hutchison a case of congenital nævi.

A Series of Stones.

Dr. Armstrong reported a case of stone in the kidney (illustrated by skiagraph) with the following account: Young man, aet. 24, with a history of pain in right kidney in boyhood, always in one place, half way between umbilicus and anterior superior spine of ilium on right side; attacks lasting from a few minutes to several days, with feeling of

nausea, bowels bloated and rumbling; attack generally followed by loose movements, no chills or perspiration; no blood in urine, though father states that it had been passed in boyhood. The interesting point was that the pain being referred to this region gave rise to a diagnosis of appendicitis and the appendix had been removed in Boston about a year ago. The pain remained same as before, urine clear, yellow, normal, alkaline, albumin occasionally present, no sugar, pus cells, a few blood cells, no epithelium, no casts. A further interesting point was the skiagraph. That method was becoming more and more perfect, and should be used in all cases suspicious of stone. He cut down upon the kidney about two weeks ago and immedately came upon the stone lying in the pelvis, chiefly an oxalate. He opened the posterior wall of the pelvis, extracted the stone and sutured the pelvis; no urine has escaped; the wound completely closed and convalescence was without a drawback.

Another case was that of a man of 63, who was unable to pass water and his physician used the catheter; next day he could not pass urine, and the physician was unable to pass the catheter; he was aspirated four times as no catheter could be introduced. On close questioning it was found that fourteen years ago he had an attack of pain in the back with vomiting and had been given morphia. On suprapubic incision he found the middle lobe pushed right up against the internal orifice of the ureter, and held there by the unusually large stone which was exhibited; it was a very fine specimen of oxalate.

Another case was that of 28 gall stones of uniform size; 25 removed from the common duct and 3 from the gall bladder. The woman had no symptoms until a year ago, when she had a number of attacks of gall stone colic, fever and pain, but scarcely any jaundice.

Yet another case, with large stones he said possessed interest, chiefly from the fact of difficulty of diagnosis. The pain had been in the region of the appendix for some five or six years, but on operation he found an atrophied appendix, and on passing his hand up he felt a large stone in the gall bladder. Since then there has been no pain in the appendix or gall bladder region.

The last case, he said, presented a number of points of interest in addition to the fact of there being 150 gall stones. A woman of 55 with no symptoms was seized with a typical attack of gall stone colic. The objection to operation was that she had pretty well advanced Bright's disease and ice bags were tried at first, but finally he operated and removed the stones. In such cases, he said, he depended more on the specific gravity of the urine than on the quantity of urea. The gall bladder was practically an abscess cavity, and he thought it wiser to remove the infected sac than to leave it.

Dr. Keenan did not think that skiagraphs invariably showed stones, as they might be present and not show on the plate. Undoubtedly an oxalate showed better than urates or phosphates and the clinical evidence was most to be relied upon for diagnosis.

Dr. Hamilton asked if the subject was a thin one, as his experience with the fluoroscope was that thin persons showed to better advantage.

Dr. Armstrong replied, in case of the skiagraph for stone, that in 28 cases of stone, 24 had been shown on the plate. His patient was a thin man and undoubtedly the thickness of the individual had a great deal to do with securing a good plate. Two or three plates were necessary to make sure, and it was quite possible that it might be present and not show on the plate.

Dr. Finley reported a case of carcinoma of the œsophagus involving the trachea. The patient, aet. 62 was admitted in March, complaining of cough and expectoration; had been subject to cough for several years, but recent attack was much exaggerated; a history of specific disease 17 years previous; he had evidence of bronchitis; cough, muco-purulent expectoration, numerous ronchi and sibilant sounds over chest; a day or two later noticed stridor, which directed attention to a probable obstruction in the trachea; became subject to very intense dyspnœa, during which he was cyanosed and became almost pulseless; died from pneumonia about a month after admission.

During life aneurysm had been thought of, but no evidence found, and from the history, a syphilitic contraction of the trachea seemed probable. The trachea was examined by the laryngologists, but with negative results, though the dyspnœa and very irritable throat rendered the examinations unsatisfactory.

Autopsy showed a growth in the œsophagus about 6 inches from the upper end surrounding three-fourths of the œsophagus; there was narrowing, but no marked stenosis. That condition caused no symptoms, until the metastasis in the trachea developed; that was about two or three inches above the growth. This mass lay alongside the trachea, and projected into the lumen, and was apparently a gland; it was of considerable size, and around it were two or three smaller nodules. This had caused a great degree of narrowing and was evidently responsible for the stridor and dyspnœa. This symptom of stridor was very important, and when present one was usually right in regarding it as arising from pressure or obstruction of the treachea. Microscopically the growth was a squamous-celled epithelioma.

Dr. Archibald reported a case of bony tumor of the elbow joint, illustrated by specimen. He also showed a specimen of tubercular osteo-myelitis of the rib, which had produced a spontaneous fracture and an external tumor, without the slightest symptom.

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THE TREATMENT OF CONSTITUTIONAL SYPHILIS.

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During the first half of the eighteenth century but little was known about the unity of that disease which is now commonly called Syphilis; it was still confused or associated with such pathological conditions as urethritis and chancroid. In the second half of the century, the theory of the identity of syphilis and gonorrhœa was firmly opposed by Balfour of Edinburgh, and Benjamin Bell, in opposition to John Hunter, who maintained the identity of the two diseases, but the question was finally set at rest by the experiments of Ricord, who established the axiom that the gonorrhœal secretions can never produce a chancre, and yet, although the truth has been settled in the mind of the scientific physician, it cannot be forgotten that even so late as 1829 Sir Astley Cooper denounced the practice, common in hospitals, of giving mercury for gonorrhœa, and it was not until 1852 that Bassereau separated primary venereal sores into two classes, named respectively, hard and soft; before this time it was pretty generally supposed that all venereal sores were due to the action of a single virus.

Syphilis may be defined as "a contagious disease, chronic in character, due to the entrance of a specific virus into the system, which is capable of further propagation and transmission, both by inheritance and by inoculation with the blood and morbid secretions from the affected individual."[1]

The specific cause of this infection is as yet unknown, and, until such has been discovered, it is inevitable that all efforts to treat this disease must be founded on empiricism. Yet, although we are in ignorance of the exact causation, we are in possession of the knowledge that syphilis being contagious is probably of microbic origin, that syphilis bears a definite relationship to those conditions which are commonly known as "infectious diseases," in that the mode of infection is by contact, and this infection is followed by a period of quiescence,

or incubation, terminating most commonly in eruptions, accompanied to a greater or less extent by fever, malaise, and other characteristics of a general infection, and that these in their turn give place to periods of latency, which latency may, however, be interrupted by exacerbations or by neoplastic lesions—a history characteristic of a disease of microbic origin.

To-day, scientific physicians are inclined to attribute the specific cause of all diseases to one of two different classes of micro-organisms; bacteria, or that amœbic-like species, of which the plasmodium malariæ is our most notable example, and are called protozoa. To which is syphilis attributable? In the past, effort after effort has been made to find in the lesions, the blood or the body of the syphilitic person bacteria, which could, according to Koch's law, be defined as the causal agent of syphilis, but without avail; and yet, when we consider the likeness which the tertiary form of this disease bears to tuberculosis, we cannot help returning to our search for a microbic origin of these tubercular syphilides. Perhaps, however, when some method of differentiating from the body tissues, that protozoid class of organism, even now known to be responsible for certain diseases, has been found possible, the discovery of the cause of lues will soon follow.

The question of the etiology of syphilis cannot, however, be discussed without considering the possibility of the dual causation of syphilitic lesions. Are the lesions caused by secondary and tertiary syphilis, due to the same etiological factor? Many say yes, but others say no, certain of the latter asserting that while the primary and secondary lesions are certainly due to a specific virus the tertiary manifestations are but due to a post-syphilitic degeneration.

Let us consider the likeness existing between syphilis, the exanthemata and tuberculosis. An individual becomes affected by the syphilitic virus; a definite period of incubation follows, which period is succeeded by the primary sore, a local manifestation of what is probably at first a local disease; we then have what has been called the period of secondary incubation, which is followed by more or less generalized lesions.

Trace the infection; an entry is obtained for the virus, the incubation period is spent in its gathering of strength, which point having been reached it manifests itself, possibly as a small soft sore. This sore enlarges and rapidly becomes indurated; the irritation of the virus has produced a hyperplasia of the tissues. Rarely the disease is arrested at this point by nature's method; more frequently the virus is disseminated by the blood and lymph channels, and this dissemination occurs during the so-called period of "secondary incubation." This period is succeeded by more or less generalized manifestations,

which, like the exanthemata, are accompanied by constitutional disturbance, often indicated by rise of temperature, and general malaise, but still nature attempts a cure. Sooner or later, however, other factors enter into consideration. The invaded host gains strength on becoming accustomed to the toxines of the invader, and the latter gradually become attenuated, possibly through the same conditions as influence the virus producing the different exanthemata, and thus the early secondary symptoms pass to the later secondary and these latter to the early tertiary where hyperplasiæ are the characteristic phenomena. Possibly where the virus becomes firmly encapsulated, as in tuberculosis, a period of truce ensues, and cure results in a longer or shorter period of time, according to the resisting power of the host and the virulence of the invader.

To recapitulate; let us consider the following hypothesis:—

Syphilis is at first a local disease. It then becomes generalized. Lastly, by the degeneration of localized healed lesions, local manifestations may again appear. In other words, the syphilitic virus seems to tend to provoke the same hyperplasia of tissue as does the tubercle bacillus, possibly, the so-called tertiary manifestations are quite frequently due to the breaking down of these areas of hyperplasia alone, which is characteristic of many new growths. Again, such hyperplasia may characterize encapsulation of the virus, which, as in tubercle, may mean the healing of the disease, and the degeneration following such encapsulation may be totally independent of the activity of the virus, and it may be altogether encapsulated and therefore inert. This hypothesis will explain that few cases of tertiary syphilis have been proven to be contagious.

"No discussion should be required in this place to show that mercurial remedies are the real remedies for this disease." With these words, Liebreich, nearly twenty years ago, opened the discussion on Syphilis at the International Congress held at Copenhagen. Do we believe this literally to-day?

In these days, when our faith in the specific action of drugs is decreasing, when even men like Osler openly state that we have but three or four brilliant instances of the specific action of a remedy,[2] and when the most modern thinkers will classify with him, as our four greatest specifics mercury and potassium iodide for syphilis, with quinine for malaria and iron for chlorosis, it seems bold to say, that there are many who are unconvinced of the specific action of mercury. E. L. Keyes, in a private letter about two years ago, wrote: "no treatment, mercury in excess, or mercury in tonic doses, or mercury in controlling doses, no iodides, no springs, nothing but the lapse of time

and the grace of God ever eradicates the syphilitic virus; but time always does it; that is, the disease ceases to be virulent, and ceases to be communicable to another in any manner after a long enough time with or without treatment."

Why, then, should treatment be necessary? Because its aim is "to suppress symptoms, and prevent them from doing harm during their existence; to control symptoms and prevent relapse, without harming the patient in any way; so to manage the disease that it may not be contagious during its existence by keeping down such symptoms as yield contagious secretions, that the patient may be enabled to marry as soon as possible, to produce healthy offspring, and that the symptoms of the disease during their progress shall be restrained from leaving unsightly scars or damaging the structure of tissues or organs during their existence. These ends may be more certainly attained by the judicious use of the preparations of mercury and iodine than by any other means; and this is the reason why these drugs hold their place in medicine as anti-syphilitic specifics, notwithstanding the fact that the disease goes on and runs its full course in spite of their use, and notwithstanding the fact that much harm has doubtless been done with the drugs by their unskillful use."[3] Mercury can at least be said to paralyze the virus and act as an antidote to its toxines, or to increase the resistance of the host. It tides us over that period of virulence, when the host is overridden by the invader, when the invader is at the height of its power, when the host possesses the minimum resistance.

Does mercury act as a specific against syphilis? I believe not. Those who treat syphilis continuously for a definite period of time, believe that mercury does; that mercury acts as a germicide, but it is strange that such dilute solutions as we are able to circulate, are able to kill the virus when we remember that mercury circulating in the system of workers in mercury is apparently unable to act as a germicide, and prevent infection or the growth of the syphilitic virus. What action then may it have, that nearly all acknowledge its beneficial effect on acute secondary lesions?[4] It may perhaps act as an antidote to the toxines and thus let the body build up the tissues, or it may even favor the formation of an antidote formed by the tissues.

Probably nearly all the members of the profession in Montreal are followers of Jonathan Hutchinson, and believe in the specific, curative or antiseptic action of mercury; consequently this disease is usually treated here by the administration of mercury, more or less constantly for a definite period of time, say two to four years, irrespective of the

activity or non-activity of the virus. Other workers, however, while believing in the specific, curative or antiseptic action of mercury, have suggested intermittent treatment. This they advocate, knowing that the tissues during continuous treatment become tolerant of the remedy, and that syphilitic exacerbations occur during the constant administration of mercury when, as Peterson says, we have lost our remedy. In other words, the constant use of mercury causes the tissues to become accustomed to its influence, and we have lost its powerful action, when we most need it. This tolerance of the tissues for mercury, is seen not only in the fact that in the continuous method much larger doses are necessary in an exacerbation than in the first rash, but in the hypodermic treatment, when the tissues have become accustomed to this drug, we can often employ one grain of sublimate, though the B. P. maximum dose is but 1-15 of this amount.

Do these advocates of intermittent treatment err? Do they obtain a more powerful action against symptoms only by sacrificing the patient's chance of ultimate cure? Do they increase his chances of suffering from tertiary manifestations and the post-syphilitic affections such as tabes and general paresis?

If it were possible to prevent tertiary lesions by early continuous treatment of secondary lesions, nearly all would advocate this method, but unfortunately, this does not seem possible; on the contrary in Norway where many cases are not treated by mercury, tertiary cases are not more frequent (Groen), and that class of affections, which has been called "les affections parasyphilitique" appear more frequently in the wealthy, who are probably the best treated, than they do in the poorer classes. In Dalmatia and Bosnia, where there is much syphilis and little effort at treatment parasyphilitic affections are stated to be unknown.[5]

When this is considered with the fact noted by those treating syphilis by the intermittent method, that mercury does not act so well in those without symptoms as it does in those with symptoms, it is not to be wondered that many are dissatisfied with the specific and continuous use of this remedy. This is explained by the fact that in those with symptoms the affection is more or less general.[6]

The study of, this the "chronic intermittent treatment," forces us to consider what and when should be our periods of intermittency and thus we are led to reflect upon the condition of the virus during this period. It has been suggested that during periods of activity the virus is free, and during periods of inactivity it is encapsulated and incapable of being reached by mercury, and only when it is non-encapsulated, as is demonstrated by symptoms, is mercury indicated. This is the view

of those who treat only when symptoms are present, imminent or just passed, and consequently they have received the name of the "symptomatic school."

To recapitulate, there are three distinct methods employed by those who treat syphilis by mercury, and their treatments are based on three different hypotheses.

(1) The continuous method:—Those who favour this, believe in the antiseptic action of mercury, which according to their theory is equally powerful at all times, and should be administered for a definite period, say two to four years. Of this school Hutchinson is the leader.

(2) The chronic intermittent method:—Those who employ this method, either believe in the antiseptic action of mercury and its ability to attack the virus under conditions of both activity and inactivity, or feel that mercury does not act as a germicide, but as an antitoxine, and as such should theoretically be equally efficacious at all times, if it were not for the tissues' capacity for becoming tolerant to its use, and it has been suggested in this respect that it is possible in latency a certain part of the virus is free and gives off toxines which are insufficient to irritate and cause lesions, unless there are localized foci of degeneration.

Probably this school use mercury in latency, hoping that it will act as an antitoxine directed against these poisons. Of this school Neisser was the most prominent advocate.

(3) The symptomatic method:—Those who treat lues by this method believe that the syphilitic virus, when inactive, is probably encapsulated and incapable of being reached by mercury. They consider it wrong to disturb the tissues by the employment of mercury when the virus is inactive, and they consequently begin treatment only on the appearance of syphilitic lesions, and cease treatment until again indicated by symptoms, shortly after the disappearance of syphilitic manifestations.

In the discussion of this, the symptomatic treatment of syphilis, a definition of the term symptoms is called for; an explanation of what may be considered indications of the activity of the virus is imperatively demanded and must be considered before the practical treatment of lues is discussed.

We assume the care of a patient, who has passed his period of "secondary incubation," an early rash accompanied by a generalized enlargement of the lymph glands is apparent; we choose a method of treatment with mercury and succeed in our efforts to drive away the cutaneous manifestations. The lymph glands are still palpable, but are neither as apparent or tender as they were some weeks previously, and

although the cutaneous syphilides have ceased to exist, our patient has, for some few days, been complaining of a slight ulceration over the gum of one of his wisdom teeth. Let us consider his history and condition more fully. His weight is decreasing and has decreased quite alarmingly. A pasty colour, or even a marked anæmia, has drawn his friends' notice to his apparent ill health for some weeks past. On his solicitation, we have increased our dose to the point of tolerance, and yet our symptoms have not remitted. What course is open to us? Stop the use of mercury at once. Tonics and constitutional treatment should be our method now. With watchful care we should regard his condition under the non-employment of mercury with the knowledge, that loss of weight, anæmia, and lassitude, quite frequently accompany a sufficiency of that drug, that moderate glandular enlargement may be present for months, and even years, when the patient may be either without syphilis or suffering from a latent form of this disease, and most important it is to remember that ulcerated and tender mucosæ are found quite frequently in those suffering from a sufficiency of mercurial treatment.

In fact, we must always bear in mind the knowledge that mercury is eliminated by the mucosæ, that in many persons those symptoms so frequently seen on the mucous membrane of the syphilitic mouth, are as likely to be due to mercury as to syphilis. In this respect we must remember that exacerbations have been noticed in such lesions of the buccal mucosa, on the administration of one of a series of bi-weekly hypodermic injection of a large dose of bichloride of mercury.

How then can we know when to treat our patients with mercury and when to avoid the use of this remedy? By the exercise of judgment, alone, we must act, as we have no certain means of differentiating between lesions, common to both lues and an excess of mercury. Judgment must be based on the observation of the patient from the beginning of treatment; his weight; its variation under treatment; his blood; its variation under treatment; his general condition under the cessation or employment of mercury. These and many other signs and symptoms, must be weighed, in order that we, with our present lack of knowledge, may judge of the best course to pursue.

The next question that arises, is the local preventative or prophylactic treatment. Can constitutional syphilis be avoided by the obliteration of the primary lesion. Lues, of course, is primarily a local disease. Can it be prevented from becoming generalized. Theoretically it may, but practically speaking, our capacity to prevent the generalization of this disease is to be doubted. The individual is infected, but unfortunately it may be weeks or months before the primary sore is obser-

vable. What has become of the virus in the meantime? Although it is probably cut off from the distant tissues by the salutary action of the leucocytes, we are without proof that some of it has not been carried by the circulatory systems to remoter parts of the organism.

Even when a sore first becomes apparent, who can say that it is leuitic? It is rarely until the nearest glands are and have been for some time affected, that we can be more than suspicious of the syphilitic nature of the lesion. In fact, the rapid enlargement of the lymph-glands is one of the suggestive symptoms of this disease. Again, when the nearest glands are enlarged, is it not probable that others also may contain the virus?

Yet, I consider that we are justified in radical operations in certain selected cases. Even when the nearest glands are enlarged, in some persons we may do little harm and possibly much good by such radical measures which should not fall short, however, of the removal of the glands, if they are palpable, difficult though this latter procedure may prove to be. "Up to this time, all that can be said in the present state of the question is, that cutting out the initial lesion of syphilis can do no harm, and may do some good. It should be placed before the patient in this light, and, if he elects excision and the chancre is in a suitable position for thorough removal, it may be exicsed."[7]

"On the hypothesis that local primary lesions afford no certain indication of the beginning of a constitutional disease, the general treatment applied before the development of undoubtd syphilitic symptoms has been called the general preventive method," but this hypothesis cannot be accepted without exception. "The local primary lesion, if observed at all, must be recognized as the real beginning of the disease, and a general preventive treatment is then just as much out of the question as local methods. It follows logically that general, that is to say, specific, treatment should be adopted as early as possible; delay is justified neither theoretically, as everyone will admit, nor practically, as my own experience has taught me. It is true that on this principle patients will be subjected to specific treatment whose symptoms are purely local and might, therefore, dispense with general treatment. Such treatment, however, can do no harm, and affords, at least, that moral satisfaction of feeling that nothing has been left undone."[8]

The general preventative method is not looked upon with favor in this country. The possibility of submitting an individual to mercurial treatment, without need is quite naturally to be deplored. Our teachers have impressed on us that secondary symptoms delayed by mercurial treatment are prone to appear with greater violence at a later

date. Again, the possibility of doubt existing in the mind of both patient and physician, as to whether the patient really suffered from primary syphilis, when such diagnosis has not been verified by secondary symptoms, has been pointed out as a serious consideration, and, indeed, these must be considered such by those who believe in the antiseptic, specific and curative action of mercury, but to those who believe in mercurial treatment as being simply anti-symptomatic, and that time alone cures this disease, they are of little import, especially when it is remembered that a negative diagnosis is also uncertain when given to a patient who has suffered from a typical primary sore, and here I have in mind those cases where, although typical early secondary symptoms have never appeared, grave visceral and other lesions afflict a patient who thinks he has never had syphilis.

When to a believer in the symptomatic method of treatment comes an individual suffering from a sore, situate on the genitalia, which has appeared at least a week after coitus, and without apparent cause, suspicion is quite naturally aroused. When, in addition, the history discloses that such coitus was according to our ethics illegitimate, we naturally seek a rapid induration, and when this is followed by a rapid enlargement of the lymph glands, in the immediate vicinity, and later a general adenitis, our suspicions have been so far confirmed that it seems hardly necessary to await further confirmation in many cases, and, indeed, it seems doubtful whether we are justified in doing so.

Let us begin treatment, therefore, and continue the use of mercury until we have not only healed the sore but until the last vestige of induration has disappeared, and then make assurance doubly sure, by its continuance for some weeks after the last suspicion of an active virus has been dispelled. And the disappearance of the last vestige of induration, at the seat of the primary lesion, is often not the work of days but of months, as is shown by the history of a patient, seen at the Montreal Dispensary nearly four years ago.

On the 20th November, 1899, he presented himself for examination, complaining that the day before he had noticed two small sores at the preputio-coronal junction. Each was seen to be about 3-16 inch in diameter, and to secrete a clear fluid. No induration was palpable. The patient was prepared to affirm that he had not had coitus for six weeks. The diary of that date ends with the question "are they specific?"

22nd November, "The two sores now seem to rest on a plaque of induration, otherwise conforming to above."

1st December, "Induration still marked. Submaxillary and inguinal glands enlarged."

4th December, "Induration still marked. No abrasion or secretion. Sternoid and glands of groin enlarged. No sore throat or headache."

14th December, "Examination shows indurated plaque covered by normal mucosa. Fauces only suggestive. Little sore throat. Glands in groin slightly enlarged, submaxillary slightly enlarged. Has had coitus."

6th January, 1900, "Examination shows indurated dry submucous plaque to be still on penis, glands in groin and neck still enlarged. Epitrochlear glands doubtful. Slight injection of throat. Slight pains. A few papules on lower part of thorax and abdomen. Not yet typical."

30th January, "Typical lues, to be treated with mercury."

Patient was then kept on anti-syphilitic treatment for four months. He then disappeared, but reappeared on 12th February, 1901, giving this history. For five months he was at work in Quebec, always enjoying perfect health, but was untreated. He then spent one month in New York and two months here, without being treated. The notes here state, that all this time . . . . . he claims that he had a hard preputial "wart" on site of old chancre, which had been cured, for at least three weeks before the wart appeared. This, by picking, came off and showed an ulcerated surface simulating a chancre for which he came for treatment. The sore rapidly disappeared under mercurial treatment.

This history is interesting because it tells of the existence of a penile lesion, at least on the site of the primary sore, for over one year. The condition of the seat of the primary lesion, then, may certainly be said to be one of the indices which must be examined in our consideration of the question of the advisability of our using mercury, or continuing its use.

It has been pointed out that the discomforts accruing from the primary sore, and the local adenitis, often become so marked that we are forced to institute general treatment before the appearance of secondary symptoms, and in some, also, the exigencies of their occupations, social and family ties, seem to make it most important that the possibility of the appearance of tell-tale symptoms must be combated, if this can be done without injury to the patients.

On May the 5th, 1903, a gentleman presented himself to me with a history of illegitimate coitus, about ten days previously. He had noticed a small sore on the morning of his first visit to me. Examination showed a sore of about $\frac{3}{8}$ inch in diameter, surmounting an area of suggested induration, the inguinal glands were barely palpable.

He was instructed to keep this clean, the opposing mucous surfaces were kept apart with absorbent cotton and he was asked to report daily for examination. The second day demonstrated an increased area of abrasion and the presence of induration was now assured. At this period, I considered excision, believing that the chances of its being lues were nine to one, but I desisted from this as certain circumstances made it unadvisable. The patient was seen daily for three weeks. The inguinal glands became rapidly enlarged. The sore extended as a band of about ½ to ¾ inch around the preputio-coronal junction, and surmounted a definite plaque of even greater dimensions. The distant glands rapidly became palpable and soon a definite adenitis, even discernable in the epitrochlears, was apparent. I explained the situation to him, and the patient, I think wisely, chose immediate treatment by mercury. This I instituted, and soon had the pleasure of seeing what was apparently an unhealing sore, become healthy in appearance; nineteen days after we began treatment, it may be said to have almost disappeared and this disappearance has been brought about without local treatment. Cleanliness alone has been exercised from the first; at one time without avail, but when general treatment with mercury was used as an adjunct the healing process was immediately noticeable, and seven weeks later, outside of that tell-tale induration, nothing is left of his primary lesion. On the 15th July the induration is well marked.

Is it not right in such a case to begin treatment without waiting for what are often disfiguring cutaneous manifestations? Ziemssen answers: "general treatment, curative, not preventive, should be commenced at soon as possible after infection."[9]

If it be permissible to repeat certain fundamental principles to be considered in the treatment of syphilis, before dilating on the methods of employing mercury, it will be well to consider that broadly there are but two schools of thought, amongst those who use mercury for the treatment of this disease; those who believe that mercury cures syphilis by its antiseptic action; and those who believe that time alone cures syphilis, and that mercury acts only on the virulence of the specific organism, although it may perhaps be said to act as an antiseptic in that it decreases the virulence of the virus or possibly it increases the resistance of the host.

Those who believe that mercury cures syphilis, use mercury for a definite period of time. Those who believe that time, alone, cures syphilis, use mercury on the appearance of symptoms, during their imminence, and immediately after they have passed, believing that mercury used in the interim is certainly of no avail as a curative agent,

and quite possibly detrimental to the general health of the patient. "From the antiseptic point of view it is not justifiable, and from the practical point of view it is of little use, to repeat the treatment," (as does Fournier), "if no new symptoms manifest themselves. It should be had recourse to at once, however, if any relapse occurs. Fournier's plan of repeating the treatment once a year for four years might just as well be extended to the whole of the patient's life, for I have seen relapses, even after four years, in cases in which less energetic forms of treatment, like Fournier's, had been undergone every year."[10]

How should mercury be administered, at what intervals should the doses be taken, and what are the common indications that point to our dosage being too great, are questions which must now be considered.

The three most common ways of administering mercury to-day are:—1. The hypodermic method; 2. By inunction; 3. By the mouth.

These have been named in the order of their efficacy, and it is by the exercise of judgment alone that we can decide which method is most suitable for a given patient, or at a given time. It would be absurd to employ any one of these methods for all patients. It would be unwise to be unprepared to change from one method to another.

In the consideration of how frequently it is necessary to administer a dose of mercury, it must be remembered that this drug is excreted in large quantities, especially by the urine, even up to the tenth day after injection; consequently, in using it in maximum doses it will be necessary to repeat this quantity at intervals of at least ten days, but better, probably, at not greater intervals than one week, and in using smaller doses it must be repeated more frequently.

What is a maximum dose? It has been already stated that, in the hypodermic method of treatment, by accustoming the tissues to its use, doses as large as one grain of corrosive sublimate have been used. In endeavoring, however, to ascertain the maximum dose, certain circumstances must be considered: first, the condition of the buccal cavity; second, the number of the alvine excretions.

Preparatory to beginning treatment with mercury, the patient should be recommended to visit his dentist, and by a thorough examination of his teeth prepare his buccal cavity to act as one of our best indices to an excessive dosage of this drug. A good mouth wash, also, should be recommended, and its frequent and constant use throughout mercurial treatment, insisted on.

Let us begin by administering a small dose of mercury, which may be gradually increased from time to time until the point of tolerance is ascertained by an apparent slight tenderness of the gums on opposing the teeth. An overdose is indicated by stomatitis and dysentery.

"Mercurial stomatitis commences with swelling and relaxation of the mucous membrane of the mouth, particularly at the edges of the gums between the teeth. The parts most exposed to pressure and friction slowly wear away, the ulcerated surface forming a greyish-blue patch on the mucous membrane. This is best seen at the edges of the gums, and wherever the teeth, particularly those with cutting edges, press constantly against the mucous membrane of the tongue, lips, or cheeks (wisdom teeth at the angle of the jaw)."[11]

The maximum dose then is the largest quantity which can be used without causing tenderness to the gums, stomatitis or a too frequent evacuation of the intestine. In this respect, it must be remembered that the maximum dose varies. It is increased as the tissues become tolerant to the use of mercury, and varies with the method employed. Patient who will not tolerate a large dose by the mouth will quite frequently benefit by larger doses by inunction or hypodermically. It is also most important to reflect that, what may be the maximum dose in so far as the tolerance of the tissues is concerned, is not, and may be, far from that quantity of mercury which will best cure the symptoms or cause them to be cured.

The internal administration of mercury is by far the most pleasant and convenient form of giving this drug, but, it is the least effective method, and is consequently unsuited to cases where grave lesions are present, or imminent, but is probably the best method in early and mild affections. Mercury administered in this way, however, acts quite frequently as an irritant to both stomach and intestine, as is indicated by buccal lesions and an increased number of stools. The preparations most frequently used, are in the order of efficacy, hydrargyrum cum creta, hydrargyri perchloridum, hydrargyri prot iodium.

Of the first: This is probably the best all round remedy of the three, and is used by Jonathan Hutchison with great success. It may be used as a powder, pill or tablet. At the beginning of treatment, it is well to give three one grain doses per diem to an adult, or three third grain doses to a child of six months to one year. This dosage may be increased to the maximum dose for the patient in about ten days to three weeks.

Proto-Iodide is probably more frequently used and is usually administered in the form of pills. It is apt to give diarrhœa as it lacks the astringency of the chalk in the former preparation, and it is difficult to see the advantage of the iodine in this preparation when used for early secondary lesions.

Corrosive Sublimate is the salt most frequently used when it is desirable to administer this drug in a liquid form. It is an irritant poison with a dose of 1-120 to 1-12 grain, and, consequently, should

never be used as a pill. In cases of congenital lues, F. J. Shepherd, of Montreal, sometimes gives 1-96 grain three times a day in form of a solution to an infant:

℞	Hydrargyri Perchloridi		Semi-granum
	Aquam q. s.	ad	Uncias Sex
	Misce fiat solutio		

Sig.—One teaspoonful three times a day

Mercury by inunction, is the method most frequently used in this country in dealing with grave cases, where life, or an important organ, is threatened. The favourite preparation is unguentum hydrargyri, or blue ointment, which is made by rubbing up equal parts of metallic mercury with prepared lard.

The patient is instructed to rub into the skin of the abdomen, axillæ, groins or popliteal-spaces, on succeeding days, a portion of this ointment, of a size varying from a bean to a walnut. He is warned to use such friction that little or no ointment is left on the surface. This procedure he is expected to carry out six days out of seven.

The only disadvantages of this treatment are the time taken in the daily inunction, the fact that the ointment soils the clothing, and dermatitis or eczema is liable to occur from the irritation of the ointment and the friction. The second disadvantage can be obviated by using white precipitate ointment as suggested by F. J. Shepherd. This ointment is made by rubbing up ammoniated mercury with simple ointment, and is made in the proportion of one in ten. It is a clean, white ointment, and although it has been used most frequently in this disease, for local lesions it seems to be a good substitute for blue ointment, and in the few cases in which I have used it has given me satisfaction.

This ointment also is apt to set up a dermatitis or eczema. Respecting blue ointment it has been stated that the eczema is due to the condition of the base and it has been suggested that by the daily or frequent preparation of the ointment this may be averted. This rule also applies to white precipitate ointment.

A dermatitis or eczema may usually be prevented by changing the site of inunction daily, and if unsuccessful, the dermatitis may be treated with "calamine lotion," of which the following is one of the best formulæ:

℞	Calaminæ		ʒii
	Zinci Oxidi		ʒi to ʒii
	Glycerini		ʒss
	Aquæ Calcis	ad	ʒviii

Misce fiat lotio

or preferably we may use lead lotion made in the strength of 1 part liquor plumbi subacetatis (B.P.) in forty parts of water.

Inunction is the method most frequently employed at sanitaria for the treatmeint of this disease, the ointment is rubbed in by a professional masseuse, who in certain cases as a self-protection against mercurial poison, employs a smooth glass, somewhat resembling a flat-iron, to supply the friction requisite to aid in the absorption of the ointment. It is quite frequently used, also, in congenital syphilis, where a small portion of the ointment chosen is placed on the child's abdomen, and the child's binder having been replaced the ointment is allowed to work in by the friction of the child's movements.

Before leaving the subject of this method, it will be well to state that certain syphilographers believe that the curative action of this drug is due to a resulting mercurial atmosphere and not to the direct absorption of the mercury at the place of inunction. Inunction is, however, undoubtedly the best all round method of using mercury.

The hypodermic method of administering mercury has been recently increasing in favor and I think quite rightly, as it may be said to be the only way in which we are certain of administering a definite quantity of mercury.

In this method either insoluble or soluble salts are used. Of the former I will not speak, except to condemn it, because it is my firm belief that much if not all the danger which is said to be due to the hypodermic method is attributable to the fact that the insoluble salts are cumulative, and we know not when their poisonous action may be suddenly induced.

Of the hypodermic injection of soluble salts, much can be said in favor. Of the salts to be used the number is many. Every advocate of this method has his favorite preparation. Those who have been educated in this method by Swinburne, of New York, use a solution of bi-chloride of mercury; they have not always, however, kept to the principles of this teacher, but have wandered from and returned again to the use of this salt.

Over three years ago, a patient of mine being discouraged with the duration of the daily treatment and the filthiness of the administration of mercury by inunction, I was forced to remember the advantages of the hypodermic method as witnessed at Swinburne's clinic, with the result that an appeal to that surgeon elicited his opinion, as given in a private letter. "I use 1 per cent. mercury, bichloride, 1 per cent. Nacl, as an injection. I do not know what the safety limit is, but I have many times given 30m., slowly, daily in alternating buttock, into the same spot each alternating time for 6 weeks and

more, and have only seen good results; very seldom have I produced salivation; when produced it is easily controlled. I have found it to be the quickest, surest and as regards mercurialization the safest method I have ever employed, and I use it more and more." Ever since receiving this letter I, like him, used the hypodermic method more and more with an increasing faith in its efficacy.

The method I employ is to keep powders of corrosive sublimate weighing one grain each. At the time of operation I dissolve one powder in thirty drops of water by boiling, and this I use at first in five drop injections each containing 1-6 grain, and eventually in thirty drop injections each containing one grain. These I employ at first twice a week, injected deeply into the gluteus maximus muscle, and later once a week, always injecting into alternate buttocks.

Of course, there are certain disadvantages in the employment of this method. First, it is painful, perhaps not always at the period of injection, but corrosive sublimate is an irritant and reaction is certain to follow its injection, and this reaction is often the forerunner of a marked inflammation, followed by an area of induration.

Suppuration, also, is said to follow. Theoretically this should be rare, as we should not get suppuration by the injection of a strong antiseptic. We must allow, however, that the lowered resistance of the tissues, due to the reaction following an injection of corrosive sublimate must be considered, perchance there are present therein micro-organisms capable of causing suppuration, under these circumstances, although they are of too slight virulence to cause suppuration in healthy tissues. Practically speaking, however, in hundreds of injections, I have seen but two cases of abscess formation, and interesting enough, these were both in the same patient. Embolism, also, is said to follow. Of these, Blaschko has had only 12 in 50,000 injections; as these emboli are aseptic, this danger may be disregarded.

Of course, buccal symptoms also have to be regarded in this as in any other form of the administration of mercury, and possibly in patients suffering from such we may have to use some method when the absorption is slower, but, with care, it is rare that such change has to be made for this cause.

The rapidity with which this remedy cures the symptoms is shown by the history of a patient who presented himself at the Montreal Dispensary, 11th February, 1901. Examination demonstrated a macular and papular rash on the lower part of the thorax and upper part of the abdomen. A hard sore was found at the preputio-coronal junction. This had appeared after an incubation of ten days and had already lasted for six or seven weeks. The scrotum also pre-

sented some "sores." The injection of a solution containing 1-3 of a grain of corrosive sublimate was begun and its strength gradually increased. On 20th February the patient received double this dose, and on the 25th, he received almost a full grain. On March 7th, the patient presented no rash or other symptoms of the disease. The condition of the site of the penile sore is not mentioned in my notes. This case, therefore, demonstrates the fact that seven or eight hypodermic injections made during a period of three to four weeks has been sufficient to allay the most apparent symptoms of lues.

It may therefore be deduced that in many cases the hypodermic injection of corrosive sublimate is a safe, clean, and non-irksome method of relieving symptoms in a short time.

While mercury seems to have a specific action on the primary and early secondary lesions of syphilis it seems to have little effect on the tertiary and some of the late secondary manifestations. According to the hypothesis already given mercury probably acts only on the non-encapsulated virus, and again as probably the late secondary, and certainly the tertiary lesions may be stated to be symptoms characteristic of an encapsulated virus, we can hardly expect mercury to affect them.

Fortunately, however we are not without a specific for these lesions which are usually characterized by hyperplasia. The iodides as represented, especially by potassium, iodide and ammonium iodide are our remedies. While the action of these drugs on simple syphilis is almost nil, they act with wondrous results on all lesions accompanied by swelling or effusion into the tissues as periostitis, swelling of the glands, syphilis of the testicle, liver or brain and on all those lesions known as gummata. This curative action, however, is merely temporary. It is observed only so long as the drug is taken.

"While mercury by its antiseptic and bactericidal effect injures the microbe which is the cause of the disease, the iodide, by its absorbent action, removes the hyperplastic changes of the tissues which have been produced by the microbe. In short, while mercury cures the disease itself, the iodide only causes absorption of the products of the disease."[12]

The salt of iodine most frequently used is potassium iodide. This comes in colorless opaque cubic crystals which are freely soluble in water. The dose of this salt is two to twenty grains freely diluted in water and given after meals.

While potassium iodide acts like magic on most tertiary lesions, it is to be remebered that it is not only a depressant, but is a gastric irritant, and in certain subjects who possess an idiosyncrasy for this drug, and in other subjects when given in too large or too frequent

doses is apt to give rise to that condition which is called iodism, consisting of coryza, the watery discharge from the nose being sometimes profuse; sneezing; intense pain of a bursting character over the frontal sinuses, commonly called "headache"; swelling and redness of the gums, hard and soft palate, and fauces, foulness of the tongue, and increase of the mucous of the mouth.[13]

While this drug, perhaps of all others, can be most depended upon to work miraculous cures of the lesions of tertiary syphilis, its utility is somewhat impaired by these facts, but it has been proven, and demonstrated repeatedly by F. J. Shepherd, that the most satisfactory way to administer this drug is in large quantities of water, and if when thus administered it still causes ill effect, the sodium, or particularly the ammonium salt may often be substituted with advantage.

The iodides are responsible for the making of more reputations than perhaps any other remedy. If the medical attendant has diagnosed a tertiary syphilitic lesion and follows this diagnosis with treatment by these remedies, administered in heroic doses and yet with care, results can and will, in the majority of cases, be obtained such as are rarely seen in the treatment of the lesions of any affection, with any remedy.

Although the dose of the iodides is usually given as two to twenty grains, experience has demonstrated that such doses in the majority of cases are much too small. One drachm or even more is usually required per diem, consequently, we usually supply our patients with a 100 per cent. solution of potassium iodide with instructions to add from one-third to one teaspoonful to a quart of water, according to our knowledge of his idiosyncrasies, and expecting to increase the minimum dose to the maximum, as we learn the system's disposition. He is then instructed to drink this whole quart in one day.

With reference to the addition of sarsaparilla or allied compound to this solution, whereas it would be difficult to prove these useless, certain it is that the iodides are capable of performing miracles without the use of adjuvants. Although it is necessary to administer these remedies for a short time after the disappearance of all manifest lesions, it is to be especially noted that the iodides are not likely to affect the patient beneficially after such disappearance has been brought about and should therefore be considered a symptomatic remedy and not a specific for syphilis.

In after days, when the individual who has once suffered from the generalized manifestations of lues, has almost forgotten that he has once had syphilis, the clear horizon may be clouded by the appearance of some isolated local lesion, not gummatous, possibly ulcerative, an

unhealing sore, the condition known as geographical tongue, a small squamous syphilide, or one of many such sources of annoyance. Should we in such cases submit our patient to another course of mercury or the iodides, and once more plunge our patient into despair? It seems needless. Experience has demonstrated that many of these local lesions will disappear with local treatment, especially if accompanied by a general tonic. Remove the source of irritation, if there be one, which acts on tissues of low resistance. Tone up the system, if it has become depressed by overwork, or otherwise, and treat the local lesion with a suitable local remedy. In the case of the so-called geographical tongue, abstinence from the use of tobacco, accompanied by a suitable mouth-wash, will often prove satisfactory. In the case of an unhealing sore, tonics accompanied by such an ointment as that of ammoniated mercury is often all that is necessary.

We must guard against the excessive use of mercury. When we get successive crops of lesions let us pause and try local remedies. Often we do not know whether we have to deal with an excess of mercury or an active lues. Often we are confronted by a cachexia or an insomnia which it is difficult to decide whether it be syphilitic or mercurial. In these cases again tonic treatment and rest, will probably suffice.

When we get periostitis or leucoplakia, during periods that are free from other symptoms, what is to be done? If these tend to spontaneous cure we need not worry, but if they have had every chance to become cured and yet persist, we undoubtedly must go back to mercury or the iodides, as a last resort.

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INSANITY AT THE CLIMACTERIC.

BY

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There is a popular and widespread belief that the menopause is a time at which mental breakdown is especially liable to occur. Every general practitioner has been consulted by many an anxious woman, who, experiencing the various nervous disturbances so common at the

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change of life, dreads actual loss of reason. And the belief that the menopause is indeed a time fraught with the gravest danger to the mental organization is not confined to the laity, but is very generally held by members of the medical profession. Because of frequent reference to the climacteric as a factor in causing insanity by physicians, I have thought that possibly a short discussion of the question might prove of interest at this time.

Amongst psychiatrists there is a marked difference of opinion as to the part played by the climacteric in producing mental disorder. Berkley, who closely follows Kraft-Ebing's method of classification, does not mention a climacteric insanity, nor does Ziehen give such a place in his classification. Spitzka considers that it is doubtful if the menopause has any influence in determining an attack, and Brower and Bannister, while giving considerable space to the insanities of critical epochs, devote but a half page to climacteric insanity and ascribe to it no other special features than that mental disease at this period tends to assume a melancholic phase. Krapelin, who at the present time is in high favor not alone in his native land, but in America also, does not specify a climacteric insanity, but his conception of melancholia corresponds very closely with the variety of depression commonly described as the melancholia of the menopause. Kraeplin considers melancholia to be a disease of the involutional period, and it is by him classed with presenile delusional insanity and senile dementia under the heading "involution psychoses." Regis, on the other hand asserts that the menopause "is very frequently the occasion of intellectual and moral pertubations and psychic modifications, which may sometimes go so far as to cause insanity," and with this view British writers, notably Bevan Lewis and Clouston, are in substantial accord.

In order to arrive at a conclusion upon a topic which causes such disputation amongst the great authorities on insanity, I have made an analysis of the cases of insanity admtted to the Nova Scotia Hospital in the past five years, especially with reference to cases admitted at or shortly following the climacteric. During these five years, a total of 639 cases were admitted, 313 being women and 326 men. Of the 313 women, 72 were between the ages of 40 and 55 years, two of the number being admitted twice during the period. Of the 326 men, 58 were between the ages of 50 and 60, one man being admitted twice during the semi-decade. One must under any circumstance be arbitrary in fixing a limit to the influence of any of the critical epochs, but I think that by including the cases occurring within the ages I have given full value to the possible influence of the menopause in causa-

tion, at least in the cases occurring in women. So we may say that in 23 per cent. (i.e., 72 out of 313), of our women patients, could the climacteric have possibly figured as a cause, and that in 18 per cent. (i.e., 58 out of 326), could the corresponding condition in the male sex be possibly associated in the etiology.

On account of the impracticability of affixing any definite time for the climacteric in the male sex, the discussion of the influence of involutional changes in the sexual organs of men, as a cause of insanity, is particularly unsatisfactory. The statistics of the cases occurring in female patients afford more reliable data.

Out of the total of 70 women whose cases come under present consideration, in only six was the climacteric assigned by the friends to be a causative factor. In four of these six, there had never been a previous attack of insanity, although two out of the four had an hereditary history. The remaining two patients presented a personal history of previous attacks and a family history indicative of hereditary predisposition. So that in only about 9 per cent. of women admitted whose ages ranged between 40 and 55, or in a little less than 2 per cent. of women of all ages admitted, did we get a definite statement that the climacteric was considered a cause, and in two-thirds of this small proportion there was the contributory factor of predisposition by hereditary or previous attack. Unfortunately the histories which we are able to secure are often so meagre that it is impossible for us to prepare statistics for which accuracy can be claimed, but it is really a surprise to me that so very small a proportion of our women patients should have their insanity ascribed to a process which not only means the gradual involution of the sexual glands—a process which is very frequently attended by an extraordinary variety of nervous symptoms—but which is concomitant with beginning changes of a senescent nature in the cerebral cells and in the blood vessels throughout the body, and consequently with profound disturbance of the nutrition of the whole nervous system.

No less than thirty of the seventy women selected for special study afforded a history of previous attacks. This appears at once to be an unusually large number, and stamps the period as one in which the likelihood of a recurrence of insanity, in those predisposed by previous attack, is very great. This observation also applies to the male cases, for in 23 out of the total of 57 male patients, a history of previous attack was given. It seems, therefore, that the period is one in which those of a psychopathic tendency should have special care, and should be guarded as far as possible from everything which might contribute to a mental breakdown.

An analysis of the clinical histories of these patients shows that amongst the types of insanity presented, melancholia and manic-depressive insanity (following Kreapelin's classification), bulk most largely. I have already referred briefly to Kraepelin's conception of melancholia. Its manic-depressive insanity is a somewhat inclusive group, taking in many of the cases which older nomenclatures would class as melancholia, a very large proportion of the cases which were formerly styled mania, and also the circular insanity of other writers. Time forbids the argument of Kraepelin's position in this matter which is certainly novel, and has met with much opposition. He is, however, perhaps the most eminent psychiatrist of our day, and consequently his method of classifying insanity must receive respectful attention. Profound admiration of his teaching has led me to favor his classification, and following it as closely as I could, I have prepared a table to illustrate the forms of insanity manifested, and the results of treatment, in the cases under consideration. The preponderance of melancholia and manic-depressive insanity will at once attract your attention.

	Men.					Women.				
	Cases.	Recovered.	Improved.	Stationary.	Died.	Cases.	Recovered.	Improved.	Stationary.	Died.
Acute Delirium	1	....	....	....	1	....	....	....	....	....
Chronic Confusional Insanity	1	....	1	....	....	2	....	1	1	....
Alcoholic Pseudoparesis	1	....	....	....	1	....	....	....	....	....
Dementia Paralytica	7	....	....	2	5	....	....	....	....	....
Organic Dementia	4	....	2	....	2	....	....	....	....	....
Involution Psychoses										
Melancholia	17	7	3	2	5	24	9	....	4	11
Senile Insanity	2	....	....	2	....	....	....	....	....	....
Manic-depressive Dementia	24	13	....	6	5	39	19	6	12	2
Paranoia	....	....	....	....	....	4	....	....	4	....
Epileptic Insanity	....	....	....	....	....	1	....	....	....	1

Reference to the table shows that the manic-depressive insanity gave a recovery rate of slightly over 50 per cent. in both men and women, while of the cases of melancholia, little more than 40 per cent. of the men and less than that proportion of the women recovered. The cases of melancholia, moreover, show a considerably greater death rate than the cases of manic-depressive insanity.

A total of 28 women and 22 men recovered, the proportion being 40 per cent. of the women and 37 1-3 per cent. of the men. The average total duration of the attack in the women who recovered was 12 1-2

months, and the average time in hospital, 7 3-4 months. In the case of the men, the average total duration of attack was eight months and the average time in hospital 5 1-3 months. In one of the women patients the total duration of attack was more than five years, while, on the other hand, in several the duration was less than two months.

Of the 28 women who recovered, 16, or 57 per cent. had been insane before, and of the 22 men who recovered 13, or 59 per cent., have a similar history. This goes to show that the prognosis is not greatly prejudiced by a personal history of previous insanity, although it does not follow, as might appear, that such a history makes the outlook for recovery more favorable than it otherwise would be.

Experience at the Nova Scotia Hospital, therefore, goes to show that the climacteric can be urged as the only or principal cause of insanity in but a very small proportion of cases. The years during which involutional changes of the sexual organs are going on are, however, very apt to witness a recurrence of mental disorder in those predisposed by previous attack, but recovery at the climacteric period is not particularly prejudiced by a history of previous attack. The prevailing types of mental disturbance are melancholia and manic-depressive insanity, of which the latter offers a considerably better prognosis as regards both life and recovery from the attack. The average duration of the attack in men was much less than that in women, which may perhaps be due to a more profound disturbance of metabolism in female patients at the time of the climacteric.

For many reasons, the period of sexual involution might be considered as having important bearings upon the mental organization. Just as we have a normal psychology of puberty and adolescence, characterized by a buoyancy, expansiveness and trustfulness, attributable with some reason to the developing activity of the sexual glands and the contribution of their internal secretion to the general metabolism, so we have commonly manifested at the menopause a tendency to depression, to distrust, to self-examination, introspection and unsociability which might be termed the normal psychology of the climacteric, and may be deemed to result from the cessation of the internal secretion of the sexual glands. A seemingly trifling cause might prove enough to turn the scale at such a time. In certain women, the knowledge that some of the charm of womanhood has departed, is sufficient to cause an amount of distress, which might really have a disturbing influence upon the mental balance. And it is not a cause for wonder that the irritability and dispiritedness which may be considered normal to women of nervous temperament at the time of menstruation, should be exaggerated into an abnormal state

by the increased frequency and quantity of flow so usual at the menopause.

For some years there has been a tendency to regard the forms of alienation which are not dependent upon defect of organization, or upon structural change in the nervous system, as being due to fault in nutrition. The problems of insanity, according to this view, are, therefore, very largely problems of nutrition, and when the far-reaching effects of the change in the structure of the whole body which occur at the climacteric are considered, it becomes perfectly evident that there must be a modification in the mental life, or breakdown will certainly occur. Thus, we have to take into account the changes in the organs associated with the functions of digestion, absorption and assimilation—pancreas, liver, lymphatics, etc., the changes in the organs of elimination—bowels, kidneys and skin; and the changes in the blood and lymph vessels of the whole body, though perhaps more especially of the brain, in order to fully appreciate the bearings of the change of life upon the mental organization. The complexity of the subject is, therefore, very apparent. Of course against all these changes, which are to be considered katabolic in tendency, we can set the fact that the menopause brings lessened requirements. The reproductive function is no longer active, the household duties are less exacting, and usually there is in every respect less demand for great activity. So it happens, that ordinarily, the individual becomes adjusted to the changed circumstances, and no ill effect is produced. But the neurotic subject is not capable of easy adaptation to such changes, and consequently needs to be carefully protected from every influence which might act prejudicially.

The practical point of my paper is, then, that, while the climacteric is nearly always a disturbing period, it is only in those predisposed to insanity that mental breakdown is especially to be dreaded. When, however, there exists a predisposition, whether this be on account of an heredity either psychopathic or neurotic, or on account of a previous attack of mental disease, every effort at prophylaxis is demanded.

Mercier lays down the dictum that the causes of insanity are heredity and stress. Therefore, when the element of heredity cannot be eliminated, it is of especial importance to so regulate the burden imposed upon the predisposed organization as not to endanger the mental poise. There is not sufficient recognition of the very patent fact, that individuals differ markedly in their capacity for bearing burdens and enduring strain. In the education of the young, incalculable damage may be done and is being done by failure on the part of teachers to properly adjust the amount and the quality of the work required to

the capabilities of the pupils. Parents are all too prone to encourage bright and ambitious children to tasks far too heavy for delicate organizations. And the attainment of years of discretion does not always witness indication in the individual of due appreciation of the limitations which nature has put to the powers of accomplishment. It consequently falls to the lot of the physician to advise teacher and parent and even the individual himself, as to the nature and extent of the tasks which may with safety be undertaken. Richardson has enunciated an excellent rule: "To every individual, as to a steam-boiler, we should allow a large factor of safety in all estimates of his capacity."

Of course stress may take other forms than over-work. All unnecessary cares and worries, the unpleasantnesses of family disagreement, the distress caused by the misbehaviour of relatives, the misunderstanding of motives, the hostile criticism of neighbours, the tale-bearing of well-meaning but ill-advised friends—all, or any of these may cause an amount of strain to a sensitive mind, which to a more evenly constituted mortal is inconceivable, but which is, nevertheless, of no small importance. A well-timed and properly directed caution by the thoughtful and watchful family physician might often times have the effect of putting an end to such possible causes and possibly prove the salvation of a patient's sanity. A placid, contented existence should be aimed at in these cases.

And then the general health must always receive close attention. Any known defect, especially of the generative apparatus, should be given appropriate treatment. The eliminatory organs should be maintained in a state of full functional activity, and no pains should be spared to keep the nutrition of the whole body at a satisfactory standard.

When treatment of an actual attack is demanded, the procedure is of course largely determined by the type of insanity manifested. There is, therefore, nothing special to be said on this subject, inasmuch as the treatment of mental conditions at the time of the climacteric differs in no essential respect from that of corresponding conditions at other epochs. Of course the possible association of some uterine derangement in female subjects will suggest itself, and if found, should be treated as in any patient, sane or insane.

A commonly held tradition, is that recovery from insanity, even though of many years duration, often obtains after the change of life has been established. I have had no experience justifying such a theory. It can call to mind no instance in which a patient whose case had been otherwise adjudged hopeless showed any improvement at or after the menopause.

REPORT ON CASES OF RHEUMATISM TREATED IN THE ROYAL VICTORIA HOSPITAL DURING THE YEAR 1902.

BY

W. W. Francis, B.A., M.D.,

Resident Physician.

During the year 1902 there were treated in the medical wards of the Royal Victoria Hospital thirty-two cases of Acute Rheumatism, of whom sixteen were males, and sixteen were females.

A majority of the cases were admitted during the spring months, namely, eighteen cases during April, May and June. June heads the list with eight cases, April and May coming next, each with five.

The average age of the patients was 25 years; the oldest 54, the youngest 5 years. From 5 to 10 years of age there were 3 patients; from 10 to 15 years, 4; from 15 to 20 years, 5; from 20 to 25 years, 4; from 25 to 30 years, 6; from 30 to 35 years, 3; from 35 to 40 years, 3; from 40 to 45 years, 1; from 45 to 50 years, 2; from 50 to 55 years, 1.

A family history of rheumatism was given in six cases; of tuberculosis in four cases. In ten cases there had been one or more attacks of tonsillitis, and two cases gave a history of chorea.

Previous attacks of rheumatism had occurred in sixteen, that is, in half of the cases. The average age at which the first attack occurred of all the cases was 21. One case gave a history of having had nine attacks of acute rheumatism in as many years; another had had seven, and another four; eleven cases had had two or more attacks.

In seventeen cases the onset was articular. In six cases tonsillitis occurred at the onset or immediately preceded it. Eight cases attributed the onset to an exposure to wet or cold. The onset was marked by headache and vomiting in two cases, by pain in the back in three, and by symptoms referrable to the heart in two. One case developed during an attack of influenza, while in another case, aged 5, three days before the appearance of the articular symptoms, the child had come down with an attack of acute broncho-pneumonia.

The joints affected, in order of frequency, were as follows: knees, 24; ankles, 23; wrists, 19; shoulders, 17; elbows, 10; hips, 8; metacarpo-phalangeal, 7; interphalangeal of hands, 7; acromio-clavicular, 3; interphalangeal of feet, 2; carpo-metacarpal, 1; temporo-maxillary, 1. One case suffered chiefly from pain in the lumbar region, another from pain in the heel.

Endocarditis was present in 19 of the 32 cases, classified as follows: Mitral regurgitation alone, 5 cases; mitral stenosis and regurgitation, 4; mitral stenosis and regurgitation with aortic regurgitations, 2;

mitral and aortic regurgitation, 2. In one case the cardiac lesion developed after admission. Dry pericarditis occurred in four cases, pericarditis with effusion in one case, pleurisy with effusion in one case, and one developed lobar pneumonia. Two cases terminated fatally, one was a child, aged 12, with mitral regurgitation, who developed pericarditis and pulmonary infarct, and died on the 19th day of her illness. The other was a woman, aged 21, with mitral and acrtic endocarditis, who had been three months in the hospital. The rheumatism became subacute; she suffered from persistent vomiting, and during the last seven weeks was jaundiced. The findings at the autopsy, in addition to the cardiac condition, were acute bronchitis, atrophic gastritis, and acute duodenitis and ileitis.

The routine treatment was hot fomentations of lead and opium, locally, and the internal administration of salicylates.

There were six cases of Sub-acute Rheumatism, including two admissions of the same case; three of the patients were males and two females; the youngest was 22, the oldest 48, and the average duration of the stay in the hospital was 24 days.

One case gave a history of previous attacks of sub-acute rheumatism, while two cases had previously had acute rheumatism. One case, a man aet 44, who had been a chronic sufferer for years was admitted three times during the year, the first and third time with sub-acute rheumatism, and the second time with an acute attack. None gave venereal or alcoholic histories. In every case the onset was more or less gradual three or more weeks before admission, with stiffness and indefinite pains, soon becoming localized in one or more joints. In three cases the symptoms came on a few days after exposure to wet.

Only one case was monoarticular. The joints involved were as follows:—knees and ankles each in three cases, the hips and wrists each in two cases, the shoulder in one case, and the small joints of the hand in one. None of the joints showed signs of either acute inflammation or of chronic changes. In the majority of instances, in addition to the pain and stiffness, there was slight swelling. In one case there was a slight remittent fever on two occasions reaching 101°, but the other cases were afebrile. There were no complications, except eczema in one case.

The treatment in four cases was mainly hot air body baths for half an hour each day. Other remedies employed in the different cases were, hot fomentations, cantharides, or salicylates locally, and aspirin or alkalies internally. One patient was discharged well, the rest improved.

There were four cases of Chronic Rheumatism, including two admis-

sions of the same patient. Their ages were 26, 43 and 55; one female and two males. The average duration of stay in hospital was 43 days.

The first case was a man, 55 years old, who for three years had suffered from pains in his joints and muscles. Four months before admission he became disabled with severe pains in both ankles and feet. On admission there was great pain and tenderness in the right ankle, with slight reddening of the skin. This gradually subsided, and he was discharged in four weeks almost well. Seven months later he was re-admitted with pain and slight swelling of the right wrist and knee, and later developed great pain and tenderness in the right heel. He was discharged improved.

The next case was a woman, 26 years old, who had had acute inflammatory rheumatism several years previously. For eighteen months before admission she had some pain in nearly all her joints, beginning with signs of acute inflammation in the small joints of the hands and feet and settling chiefly in the hips and ankles. On admission the shoulders and ankles were painful, and there was tenderness in all the joints. After two months she was discharged improved.

The third case was a man, aged 43, with some alcoholic history, who had suffered from pains in various joints for ten years, with several more or less acute exacerbations. He was admitted with swelling, heat and pain in the right knee and ankle, and pain in the shoulders, elbows and feet. Later he developed signs of acute inflammation in the tarso-metatarsal joint of the left great toe. He remained in the hospital one month, and was discharged improved.

There was no venereal history in any of the patients, and no complications. The treatment in each case was the hot air body bath every day, supplemented by hot lead and opium fomentations. In none of the cases did any of the joints show permanent anatomical changes, or ankylosis.

Twelve cases of gonorrhœal arthritis were treated, in which the diagnosis was certain. Of these twelve cases only one was a woman. All the cases were young adults, the average age being 27 years; the oldest was 35, the youngest 19 years old. The average duration of stay in the hospital was 32 days.

Only one case had previously had acute inflammatory rheumatism. Four had had one or more attacks of arthritis following previous gonorrhœal infections; one case gave a history of intemperance to account for the extension of the trouble from the urethra.

In six of the cases on admission there was evident urethritis, requiring treatment, the other six gave a clear history of more or less recent infection. In only one case was the urethritis acute, of less

than two weeks standing; seven claimed that it was their first attack of gonorrhœa. The time elapsing between the infection and the onset of the arthritis varied widely from three days to four years, but in the latter case the patient still had a chronic discharge when the rheumatism manifested itself. In half the cases the arthritis appeared within a month of the urethritis. In only two cases was the onset acute with fever. In one of these, a woman, the tendons and fasciæ were chiefly involved, especially those of the hands, and the two achilles tendons. In all the other cases the onset seemed to have been more o rless gradual. All the cases were of a polyarthritic type, with the exception of two, in both of which the symptoms were confined throughout to the heels and plantar fasciæ. In only three cases did any of the joints involved show visible signs of acute inflammation, swelling and redness. Two of these cases had slight fever for about a month, never exceeding 101.5°. One of the two, whose case was complicated at the time by manifest signs of secondary syphilis, showed a widespread involvement, including the ankles, heels, soles and small joints of feet, the shoulder, both sterno-clavicular and acromio-clavicular joints, the temporo-maxillary joint, and the vertebral. In this and in another case, which was complicated by secondary syphilis, the primary sore had not appeared until more than two months after the onset of the arthritis.

The parts most frequently involved were as follows:—the heels in seven cases, the ankles in six, shoulders in five, the plantar fascia and sterno-clavicular joints in four, the knees in three, the wrist, the acromio-clavicular, the vertebral, and the temporo-maxillary joints in one case each. There were no complications, apart from the arthritis, in any way referable to the gonococcus.

The treatment in every case was by the hot air bath, one-half to three-quarters of an hour's exposure every day to a temperature of about 300° F. The results are difficult to estimate. Two cases were discharged well. In one of these, in which the arthritis was of eleven months standing and involved both ankles, the symptoms, including some limitation of movement, disappeared after only four treatments. All the other cases were discharged markedly improved, except one, who would not remain in for treatment. In many cases the treatment seemed to have a marked effect at first in relieving the pain, but after the first week or so, the improvement proceeded more gradually or not at all. The only other treatment, apart from that of the urethritis was the local application of liniments and fomentations.

In no case does there seem to have been any ankylosis or limited mobility of the joints on discharge.

PERFORATION IN TYPHOID FEVER.

BY

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In a recent article on Leucocytosis in Typhoid Perforation, I endeavored to show how unreliable for definite diagnosis this symptom *per se* was, how after vainly seeking for one distinctive sign by newer methods we are obliged to fall back on older methods of physical examination to confirm any such diagnosis.

In the following citation of cases I should like to emphasize the variations and symptoms which occur, when in the course of enteric fever a perforation of the bowel ensues, and how often the so-called classical picture of perforation is absent, and instead of this a quite "atypical" sequence of events transpires. That the so-called typical picture refers to peritonitis has already been emphasized by Dr. Osler in his instructive article on Perforation and Perforative Peritonitis in Typhoid Fever, (*Philadelphia Medical Journal,* January, 1901), which forms a good basis of daily examination of all typhoid cases and a close attention to which should still more diminish the typhoid mortality.

In the cases occurring in the Royal Victoria Hospital the variations are so considerable, the state of the patient sometimes so good, early after the complication has set in as to render the diagnosis doubtful, in fact, the onset is so insidious at times, or so "atypical" as it has been wrongly entitled, that the citation of the following cases may be of interest.

Since the Hospital was opened, nine years ago, 857 patients entered suffering from typhoid. Among these there are eighteen cases with perforation, that is, a little over 2 per cent. of all cases. The average day of perforation was 18.8 from the onset of the symptoms. All cases were of the male sex.

Case 1.—G. M., male, æt. 19. Admitted 20th February, 1895. Perforation on the 17th day of disease.

Typical Features:—At 11 p.m., complained of sudden abdominal pain, generalised, and with some slight tenderness; vomiting one hour later.

Atypical Features:—No distension or rigidity, no change in pulse or temperature.

The following morning there was slight pain with some distension; tenderness was more marked; the temperature had fallen from 101 to 98 4-5, and the pulse rose from 110 to 140, and was thready. Vomiting set in and the patient died about 18 hours after the initial symptoms.

Case 2.—N. P., male, æt. 21. Admitted December 7th, 1897. Perforation on the 35th day.

Typical Features:—Existing distension more marked; liver dulness obliterated; increased tenderness, especially in the right flank; fall in temperature from 102° to 98°.

Atypical Features:—No increase in rigidity, no complaint of pain, pulse unaltered, no vomiting.

The patient was delirious from the time of admission; general peritonitis set in and death occurred on the 2nd day. There was no operation.

Case 3.—B. K., male, æt. 22. Admitted 5th December, 1897. Perforation on the 23rd day at 6 a.m.

Atypical Features:—Pain (radiating to the end of penis), some fulness with obliteration of liver dulness, rigidity more marked on the right side; pulse wiry and rapid; fall in temperature from 101° to 98°.

Atypical Features:—Tenderness not increased.

The patient was operated on eight hours after the initial symptoms; general peritonitis and a pin head perforation was found three inches above the valve. The patient died on the following day.

Case 4.—J. M., male, æt. 22. Admitted 7th December, 1898. Perforation on the 11th day at 9 p.m.

Typical Features:—Pain in the lower part of the abdomen; vomiting, three hours after onset.

Atypical Features:—Tenderness not marked, no distension nor obliteration of liver dulness; no rigidity, no change in the pulse or temperature.

On the following day the pain was much increased; there were distension and rigidity; the temperature in the morning had reached normal and the patient died on the 13th day of disease with all signs of general peritonitis.

Case 5.—J. J., male, æt. 18. Admitted 17th May, 1900. Perforation on the 17th day.

Typical Features:—Patient vomited at 8 a.m., and again at 11; at 12 noon he complained of pain in the lumbar region, on being moved into the bath; there was some distension.

Atypical Features:—Temperature rose from 103° to 104°, and there was no change in the pulse, no rigidity, no marked tenderness.

At 3 p.m. the pulse had increased from 124 to 134; at 7 p.m. he complained of violent abdominal pain; profuse sweating set in, the pulse be-

came rapid and the patient entered into a collapsed state; vomiting recurred.

Operation was performed and general peritonitis found. The perforation existed about nine inches above the valve. The patient died the following day.

In this case no definite onset was discoverable, the symptoms being gradual in development till the picture of peritonitis had developed.

Case 6.—J. B., male, æt. 8. Admitted October 25th, 1900. Perforaon the 34th day.

Typical Features:—Pain in the lower left quadrant; marked distension.

Atypical Features:—No change in pulse or temperature; rigidity and tenderness not marked.

The following morning pain and distension were more marked, the pulse had increased from 122 to 152; vomiting set in and the patient died on the same day.

Case 7.—D. D., male, æt. 7. Admitted 31st December, 1901. Perforation on the 10th day of disease.

Typical Features:—Pain, increasing in severity, in the right lower quadrant; vomiting of a small quantity of food once; leucocyte count 28,000.

Atypical Features:—No rigidity nor distension; no obliterated liver dulness, only slight general tenderness; no change in pulse or temperature.

Operation was performed about 10 hours after the initial symptoms; moderate general peritonitis was evident and a perforation found 1½ inches above the ileo-caecal valve. This was duly closed and the patient eventually made a good recovery.

Case 8.—G. A., male, æt. 28. Admitted January 3rd, 1901. Perforation on the 10th day of disease. The day previous to this the patient had been complaining of severe pain in the splenic region, worse on inspiration with marked tenderness; there was no rigidity, no splenic friction. On the 10th day of disease this became very severe and there was marked tenderness and rigidity in the left hypochondrium. The patient would lie on the abdomen to try and get relief. There was profuse perspiration about the head. At 6 p.m. he complained of pain in the right lower quadrant; there was no distension, liver dulness was not impaired. The leucocyte count at 9 p.m. was 13,000; at midnight it was 13,000 and at 3 a.m. 11,500. On the following day the rigidity was marked and there was some distension; the patient was in a state of collapse, almost pulse-

less, perspiring freely; leucocyte count 33,000. At 2 p.m. pulse was somewhat improved and he was operated on though with reluctance by the surgeon. Generalised peritonitis and perforation eight inches above the valve were found and the patient died a few hours later.

Case 9.—L. J.. male, æt. 23. Admitted 28th May, 1901. Perforation on the 11th day of disease.

At 11 p.m. on the day previous to admission, immediately after micturition, he complained of severe pain at the point of the penis which soon extended over the hypogastric region, but was relieved by fomentations.

Typical Features:—At 6 a.m. the day following he again complained of severe pain in the hypogastrium—again relieved by fomentations; some tenderness also over this region; fall in temperature at 9 a.m. to 99 2-5.

Atypical Features:—No distension or impairment of liver dulness; no rigidity; no change in pulse.

At 12 noon, abdominal pain was again severe and tenderness was more marked and generalised. Rise in pulse from 90 to 100. Rise in temperature to 101°. Still no distension or rigidity.

At 3 p.m., tenderness was more marked. Rise in temperature to 102. Pulse still 100. No distension, rigidity or impairment of liver dulness.

At 5.30 p.m., tenderness more marked, some distension with partial obliteration of liver dulness; pulse, 108; temperature, 102; facial aspect decidedly anxious.

At 8 p.m., generalised tenderness marked; considerable distension, especially in epigastric region; liver dulness obliterated; some dulness in flanks; rigidity marked; pulse, 108; no vomiting. He was brought to the hospital and operated on immediately. General peritonitis was found with a perforation the size of a pea situated 14 inches above the valve. The patient made a good recovery.

Case 10.—W. O., male, æt. 56. Admitted 7th September, 1901. Perforation on the 19th day of disease.

Typical Features:—Slight abdominal pain, relieved by micturition; recurrence six hours later with more severity and commencing rigidity and tenderness; increase of pulse from 110 to 140.

Atypical Features:—No distension, liver dulness not impaired; temperature rose from 100 to 104 2-5.

At 6 a.m. on the following day pain and rigidity were less marked, although there was some rigidity of the lower half of the abdomen. Tenderness was increased. Leucocyte count was 7,000. He was operated on the following morning and very slight peritonitis found.

perforation with exuding fæcal matter was found five cm. above the valve and sutured. Death ensued in 58 hours.

Case II.—H. P., male, aet. 21. Admitted 29th September, 1901. Perforation on the 20th day of disease.

Typical Features:—Generalised abdominal pain coming on gradually and general tenderness, slightly more marked in the right lower quadrant.

Atypical Features;—No rigidity or distension, liver dulness not impaired, no change in pulse or temperature. Perforation merely suspected and case carefully watched.

The next day pain and tenderness were not marked; rigidity present; pulse smaller and vomitting set in. Leucocyte count was 4,900. He was operated on and general peritonitis with adhesions between the ileum and sigmoid flexure were found, and also a large perforation 12 inches above the valve. Death ensued 50 hours later.

Case XII.—F. F., male, aet. 37. Admitted 1st August, 1902. Perforation on the 12th day of disease.

Typical Features;—At 6.30 p.m. complained of pain in the abdomen; chilly sensations; some slight rigidity in the left iliac region; general tenderness; fall of temperature from $100^{2}/_{5}$ at 9 p.m. to $96^{3}/^{5}$ at midnight.

Atypical Features;—No distension or obliteration of liver dulness; no change in the pulse or respiration. The pain was relieved by fomentations.

At 3.30 a.m. the following morning the rigidity was thought to be slightly more marked but otherwise there was no change. At 5.30 a.m., both rigidity and the tenderness were less marked; the pulse had increased from 96 to 126. Leucocyte count was 9,200. During the morning the pain, rigidity and distension increased and he was operated on at 2 p.m. On opening the abdomen general peritonitis was found and a perforation about the size of a pea, situated about 18 inches above the valve. The patient died four days after operation.

Case XIII.—M. R., male, aet. 29. Perforation on 32nd day of disease. Admitted 8th December, 1902.

Typical Features;—At 2.30 a.m. sudden pain in the abdomen with general tenderness; rise in the pulse from 100 to 112.

Atypical Features:—Rigidity and distension were not marked, there was no impairement of liver dulness; there was no change in temperature. Leucocyte count was 5,400. At 8 a.m. the pulse was more rapid, 120, but fairly good; no change in temperature. Rigidity and disten-

sion were more marked and there was a good deal of tenderness. At 9 a.m. some dulness could be made out in the flanks changing with position. Liver dulness was partly obliterated; rigidity and distension were marked; pulse and temperature remained unchanged. The leucocyte count was 9,900. The patient died at 10.40 a.m. The autopsy showed extreme typhoidal appendicitis with gangrene and perforation of the extreme tip of the organ. The amount of plastic exudation around the appendix indicated that the perforation there had been of some days standing and was older than the perforation that had taken place in the ileum 8 cm. above the valve, which had been the immediate cause of the fatal issue.

On th 12th day of disease, 21 days before the end, patient suddenly complained of apparently severe pain in the lower part of the abdomen, radiating down the legs. There was some tenderness over Poupart's ligament on both sides; there was no rigidity nor distension, no change of temperature or pulse, Morphia was given with immediate relief. There was no further complaint of pain until the 27th day of disease when he was taken out of his cold bath at the end of six minutes on account of cramps all over the body. These disappeared and there was no complaint of pain until the morning of the 32nd day of disease.

Case XIV.—J. P., male, aet. 34. Admitted 25th April, 1903. Perforation on the 21st day of disease at 11.45 a.m.

Typical Features:—Sudden abdominal pain, some tenderness just above the pubis.

Atypical Features:—No distension or impairment of liver dulness; no rigidity, no change in pulse or temperature.

At 1 p.m. there was very slight rigidity in the right lower quadrant and there were intervals of relief from the pain; there was no change in the pulse or temperature and no distension.

At 2 p.m. the pain was more severe and the patient was restless; the pulse was slightly more rapid; there was no distension and no fall of temperature. The leucocyte count was 9,200. The patient was operated on and general peritonitis found with perforation a quarter of an inch in diameter about seven inches above the valve. The patient died four days later.

Case XV.—J. C., male, aet. 16. Admitted 1st July, 1903. Perforation on the 19th day of disease at 6.30 a.m

Typical Features:—Sudden pain in the abdomen, cramp-like in character; there was a gradual fall in temperature; respirations were increased somewhat. The abdomen was retracted and somewhat rigid but with free respiration these signs passed off and palpation gave no

pain. Soon again there were paroxysms of pain, accompanied by fixation of the abdominal muscles. There was no distension or impairement of liver dulness; no change in the pulse; no nausea or vomiting. The leucocyte count was 8,000.

At 8 a.m. his condition was practically unchanged. At 9.45 a.m. the pain was severe; rigidity and tenderness were more marked, especially in the lower half of the abdomen; the finger nails were cyanosed and there was some perspiration about the forehead. The temperature continued to fall, reaching $98^{2}/^{5}$; there was some increase in the respiratory rate and the patient vomited some bile-stained fluid. There was little or no distension; liver dulness not obliterated; no change in pulse rate. Leucocyte count was 7,200; at 10.15 leucocyte count was 19,300. He was operated on at 11.40 a.m.; a mild degree of general peritonitis was found and a pin-head perforation situated about eight inches above the valve, opposite the mesenteric attachment. There was practically no lymph, except a little surrounding the perforation; the coils of the intestine were distended and reddened. The temperature has been practically normal since the operation and the patient is now, the 20th day after operation, progressing favorably.

The other three cases were all admitted to the hospital some hours after perforation had occurred, with well marked signs of general peritonitis and the histories are not sufficiently definite for our use.

It may be seen from the above series that with the exception of pain which was present in all cases—excepting in one who was delirious—there are no definite symptoms or signs which we may count on being present within two or three hours of the onset, even in the majority of cases.

There was a fall in temperature only in five of these cases; while abdominal tenderness more or less localised was also present in five cases only.

Distension was present in four cases with improvement of liver dulness in two. There was increased rigidity noticed in only four cases and vomiting as an early symptom occurred in four cases. A rise in the pulse rate was charted only in three cases.

The symptom complex of early perforation is not an obvious certainty in all cases—to say the least—indeed one must often base the diagnosis on but one or two symptoms in the absence of all others, and one may likewise justly add that an error in such a diagnosis leading to unnecessary operation is apt to be far less serious in its results than is the fatal delay of awaiting all the definite signs.

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THE COLLEGE OF PHYSICIANS AND SURGEONS.

The July meeting of the College of Physicians and Surgeons of the Province of Quebec was one of the most remarkable ever held by that body, inasmuch as something definite was done, and it is worth entering with some detail into the results of its deliberations, because, if the conclusions are finally established into law, they will have an important bearing on medical education in this province.

The new rules and regulations were of course drawn up in French and then translated into English. But as it is hard enough for a person whose business it is to write, to write clearly, when his expression has passed through the mind of a translator, it is easy to see what lucidity there will be, and therefore, many of the regulations are hard to understand. One example will serve. Under the heading of "duties of assessors" it is stated: "every candidate, who shall fail in any course, shall be obliged to repair this bad note at the final examination in following September; because every candidate failing in the

primary examination cannot be admitted to follow the final course before repairing his failure with success."

The constitution of the College itself has been altered by increasing the number of members to forty-three. Of these, two are chosen by Laval University in Quebec, two by McGill University, two by the University of Bishop's College and two by the Medical Faculty of Laval, which gives to Laval four members as against two each possessed by the other universities. This leaves the profession at large a representation of thirty-five members, which many will think is out of all proportion to the wisdom they possess.

The interests of the profession, apart from the universities, have been jealously guarded, as none of the assessors may be attached to universities, and they alone shall decide whether students possess sufficient knowledge of the subjects upon which they are examined. It is, however, questionable if assessors can be found outside of the teaching bodies, even in a profession so highly gifted as the physicians in the Province of Quebec, who are competent to say the last word upon such erudite subjects as pathology, bacteriology or hygiene.

The most startling innovation is in the regulations dealing with the granting of the license to practice. Hitherto it has been possible for a graduate of a British university or a holder of a British qualification, or one whose name is inscribed in the Medical register of England under the Imperial Act of 1886, to obtain a license to practice in the Province of Quebec without submitting to further examination. Under the proposed regulation all that will be done away with as the important proviso has been added: "provided that the same privileges shall be granted in England to the holders of diplomas of our Province."

It is quite true that the regulations of the College are only provisional; that they will be considered again in September, and that, before being enacted into law, they must have the sanction of the Lieutenant-Governor-in-Council; yet in view of the fact that these regulations are the result of several years' deliberation, that there is practically unanimity upon the subject amongst at least the majority of the College, it is fairly sure that in the ordinary course of events such will become the law.

Looking back upon the course of the College one is struck by its insistence upon preliminary examination and registration before commencing the study of medicine, and it would appear that this withdrawal of privileges hitherto accorded to British licentiates is not directed against them as such, but is intended to meet the case of those graduates from the Quebec schools who go to Great Britain,

there secure a license, and then return with the demand that their names be placed upon the register. The College has always looked upon this procedure as being an evasion of its regulations, and one member at the recent meeting went so far as to describe it as a subterfuge or ruse.

Upon the face of it, the College, being a properly constituted body, and having deputed to it by the province, which is competent to exercise that privilege under the British North America Act, the direction of medical education, is quite within its rights in enacting such regulations. It is as well to recognize that fact, but the College must also keep in mind that its conduct hitherto has not been such as to make its authority cheerfully borne. It has been actuated by ideals which were a little lower than the highest; it had no settled policy; the regulations made at one meeting were controverted the next; its records were imperfectly kept and even its monies went astray. There is no opposition to the College as such, on the part of anyone, but its erratic course has not inspired confidence that its conclusions will always be wise.

The regulations dealing with professional study are of great interest and differ materially from those hitherto in force. In future the course of study is to extend over five sessions of nine months each, and the alterations are of so much importance that it is worth giving them in detail. The curriculum provides for one hundred and sixty "lessons" of chemistry, of which forty shall be practical; two six months' courses of descriptive anatomy; two six months' courses of practical anatomy or dissection; two three months' courses of general and special physiology, of which ten lessons shall be practical; a course of normal histology of sixty lectures; two courses of general pathology of 60 lessons each; a course of hygiene of 90 lessons, of which 10 shall be practical; two courses of materia medica, comprising 20 lessons in pharmacology, 100 of general therapeutics and 120 of materia medica; two courses of 90 lessons in obstetrics and pathology of infancy; two six months' courses of internal pathology; two six months' courses of external pathology; a six months' course of medical jurisprudence and toxicology; three nine months' courses of medical clinics in an hospital containing fifty beds; three nine months' courses of surgical clinics in an hospital containing fifty beds; an obstetrical clinical course of 48 lectures in a lying-in-hospital, with attendance upon at least 20 confinements; a course of practical operative surgery and minor surgery of 60 lessons; a course of ophthalmology, otology and rhinolaryngology of 80 lessons, of which 40 shall be clinical; a course of mental and nervous diseases of 40 lessons, of

which 20 shall be clinical; a course of pediatrics of 40 lessons, of which 20 shall be clinical; a course of gynæcology of 60 lessons, of which 40 shall be clinical; a course of pathological histology and anatomy of 50 lessons, of which 20 shall be practical; a course of bacteriology of 30 lessons, of which 20 shall be practical; a course of history of medicine and medical ethics of 10 lessons; attendance at the morgue upon at least 10 autopsies.

The teaching of theoretical courses of materia medica, of internal pathology, of external pathology and of gynæcology shall be terminated at the end of the 4th year, to allow the students to pass their final examination upon these courses at the end of the 4th year "The fifth year of study shall be utilized in following the clinical courses and lessons of laboratory for the clinics," and in completing the study of special courses.

It is questionable if such an elaborate course of study has ever been devised by any college. There is no objection to the "lessons of laboratory for the clinics," but some students may consider 260 lectures in materia medica, a misspending of the small pittance of life allotted to them. It is also questionable if the framers of these regulations were animated entirely by zeal for the advancement of medical learning; it is not unlikely that they had an eye to what is being done in Ottawa towards Dominion registration, and they can point to their curriculum to prove that if the Quebec qualification is not accepted by the Medical Council as entitling its holder to practice in Great Britain the fault does not lie with the College of Physicians and Surgeons. It is this suggestion of an *arrière pensée* in all the doings of the College, that prevents its conclusions being accepted with as much alacrity as it might desire.

Whilst the College has its own proper functions the universities also have theirs. One of the functions of the universities is to teach the medical sciences, and they have now to decide whether or not they will abrogate it and hand it over to the College. In our judgment they will be remiss in their duty, if they abandon the results of their own experience as to what and how much should be taught and tamely submit to the dictation of the College in all the details of the curriculum.

The business of the College is to ascertain if a candidate for registration as a practitioner of medicine is in possession of the necessary knowledge, and it may exact, as presumptive evidence, that he has passed a certain number of years in study, but to prescribe all details of courses is to deny all independence to the teaching staffs, who above all others should know what is demanded of them. The College like the universities is the servant of the public and their service will only be endured so long as it is rendered with wisdom and faithfulness.

CLINICAL TEACHING.

There is a tradition that a hospital is a place for the care and cure of the indigent sick, but this tradition has been modified of late years in important respects. Many persons take up their residence in hospitals, who are not sick, and many, who certainly are not indigent, receive the benefits of hospital treatment. But the most important variation of this tradition is in the direction of making hospitals more available for teaching purposes. This is a natural outcome of the situation, for every bedside, be it in hospital or private house, is a place for clinical learning and clinical teaching. The comfort and cure of the patient is the first law of hospital life, and all teaching is secondary to that, but experience has proved that in hospitals where there is no teaching the patients suffer in respect of both comfort and cure.

The development of medical education is in the direction of better facilities for teaching and the best schools have their own hospitals free from the trammels of an administration foreign to the teaching body, a hospital controlled by the faculty and manned by the professors who, apart from teaching and hospital work, more and more assume the role of pure consultants in their various specialties.

The strongest advocate of a hospital devoted primarily to teaching purposes is Professor Barker, of Chicago, and after mature consideration he continues to urge the need of a university hospital, whose departmental chiefs would engage in no work outside of such institution, whose emoluments therefrom would adequately secure them a comfortable existence, and obviate the necessity of any kind of private practice. In other words clinical subjects would be taught under similar conditions, as those in the primary years, and, just as in many modern schools there is a growing tendency to relegate anatomy, chemistry and physiology to the general university, where the professors have no material interest outside of such occupation, so with the clinical teaching, whose chairs would be filled by men able to devote their time wholly to such work, without the need of engaging in outside practice, or if so only to a very limited extent.

The whole subject is one of legitimate discussion and is very near a solution in many of the most progressive schools on this continent, especially in those, whose good fortune it is to be supported with adequate means of carrying out the most desirable improvements. The probability may be admitted at once of obtaining by this means the highest grade of teaching and of more efficient and thorough attention to its details, and we believe that such a scheme would be more prolific in research, as well as in providing the best kind of hospital

service; on the other hand, we very much doubt the success of any such change without the cooperation of departmental chiefs, whose genius, wide knowledge, zeal, and personality, would carry on efficiently the required labor. Men of such calibre and capable of so high a mission are not to be found every day, even in the greatest medical centres. Yet the successful achievement of such an idea depends less on the institution, be it ever so wealthy, than upon those characteristics above mentioned which make the most wretchedly equipped laboratories and clinics, store-houses of useful information and producers of research, which have made famous most of the European authorities, which have made Pasteur and Koch the greatest of bacteriologists, which have raised Nothnagel and Kraus to the first places in clinical medicine, and have made the school of Vienna easily first, in spite of the lamentable filth and neglect which every nook and cranny of that famous institution exhibits to the most casual observer.

For us Canadians the question naturally arises: is such a teaching hospital feasible? If so, is it a wise and necessary change? And even if both feasible and wise, is it likely to lead here to an ideal condition for medical teaching?

The feasibility is largely a financial question, involving as it does either a great monetary sacrifice on the part of the clinical chiefs, or the establishment of endowed chairs each valued at not less than a hundred thousand dollars, for the surgeons and specialists doubtless much more. For six such chairs, and less than that number is inadequate, the fund required would approximate one million dollars. The hospital itself, after the building had been erected and fully equipped, would require for its efficient support a permanent endowment endowment fund of not less than two million dollars, the interest of which would be used for current expenses. Munificent as have been our many benefactions we cannot feel that any such sum is at present to be taken into serious contemplation. Some arrangement might be entered into, whereby this expense might be curtailed by the admission of private patients, whose fees would be controlled, and in large part absorbed by the hospital, but it would scarcely make a sufficient reduction to materially alter the above figures.

Let us consider the wisdom of such a plan. The functions of a medical school are briefly three-fold, primarily to educate men to become well equipped practitioners, secondly, to give post graduate students an opportunity to keep in touch with modern medical views and methods, and thirdly, to encourage work of research and foster a spirit of advanced scientific investigation among those who have time, disposition and ability so to do.

The last of these considerations, so often and perhaps rightly regarded all important, is not to be accomplished alone by means of fine buildings, well equipped laboratories and vast fortunes; ultra-scientific work of the right kind cannot be turned out after the manner of steel nails and railway spikes, nor indeed can any one's efforts at original work succeed save by the inspiration of genius or the quiet development of talent, more especially when stimulated by leaders, whose own genius and attainments are such as to attract and encourage men to achieve higher work,—leaders capable of drawing from others their latent powers, of inspiring even the indolent to a sense of their duty to strive for higher medical ideals rather than for self-interest, success in medical politics and worldly advancement.

Whether or not Canada is assuming any such role in the great active medical world, others from a distance can better judge. That it may develop and take a prominent place in advanced work in the distant or even the very near future no one would wish to deny or cease to hope. The work of Canadian universities, however, in developing practitioners, who are adequately equipped, from an intellectual and practical standpoint, is an opportunity, which we scarcely believe to be fully realised. That this, and this chiefly, is the great function of universities is not, we believe, sufficiently evident, nor can it be denied that, with our unsurpassed clinical opportunities, and the proper attitude towards the clinical teaching, Canadian students would become men with the soundest general principles, possessed of the best means of diagnosis and treatment, all based on the highest ideals and most scientific foundations.

As in the case of medical schools so with the hospitals, whose functions in addition to the rational treatment of the patients are, equally to teach students and encourage research. Given a number of chiefs at the heads of departments adequately salaried, and therefore independent, the hospital will possess men, who, if of a desirable kind, will be enabled to devote the necessary time, not only to the patients and the teaching, but likewise so to encourage advanced work that men from far and near will be attracted to the institution as pupils, or assistants. Such an assistantship as in the German Clinics would imply an admirable training, an assured future, and possibly a succession to the principal post in them or in some similar institution elsewhere.

One of the most regrettable features existing in many hospitals is this very question of assistantship. The resident who serves in a hospital for one, two, or at most three years, gains, it is true an abundance of practical experience, spending as he does many hours in the wards and laboratories but too rarely with a view to work of a

more advanced or scientific character. The reason for this is not far to seek, and though in part it may be attributable to lack of time, or wasted opportunities, it is often still more closely associated with lack of interest on the part of the chief, who, from the limited time and the necessary outside practice is obliged to devote his energies to other matters, much to his own regret no doubt if as we believe he be high-minded and worthy, still more is it to the great loss of the junior, who soon becomes a machine assistant, a slave of routine, devoid not only of capacity for investigation, but of a desire for better things.

To such men after several years of hospital service the future depends, not, as it should, on a previous association with his chief, but rather on the good fortunes of environment and opportunity. The departmental head has not found time to help his assistants in obtaining status and prestige, as occurs for example in the German Clinics, and at the end of their hospital service the assistants depend on a practice based chiefly on lower ideals. The ideal teaching hospital then being neither feasible nor probable, even though it be the sum of wisdom, cannot be hoped for at present in Canada. Should it ever come its success will not lie in buildings alone, but in the scientific spirit, in mutual generosity, in a harmonious desire for better work, in teaching, in research and the treatment of its patients.

Facing as we must then the difficulties under which we as Canadians exist, and the limitations under which work is possible, we can scarcely feel it desirable to wish for any such hospital, unless indeed the men of prestige occupying the highest places in the country would voluntarily take the lead in each department. Far better for the present, let us realise that by the excellent clinical facilities in our splendid hospitals, the time and opportunity be seized with greater eagerness to advance methodical clinical teaching, to develop excellent scientific practitioners, to teach post graduates the newer theories and methods, which we learn to believe in and adopt. With our progressive neighbors to the South, with our ambitious countrymen to the East and West, and new schools of medicine springing up on all sides, let us in Montreal look to our laurels lest by self-satisfaction we become retrograde, not only in the higher work of research but in the easier function of a school, the work of clinical teaching.

ENDOWMENT FOR M'GILL MEDICAL FACULTY.

Another magnificent bequest has been given to the McGill Medical Faculty, this time for the department of Clinical Medicine. Mr. James Cooper, always a philanthropist during his life-time and considerate

for others, died recently of cancer of the stomach. It was his express desire during the few weeks prior to his death that something further should be done in medical science to help obviate in others the malady with which he was afflicted and its consequent suffering. Hence the bequest of "the sum of sixty thousand dollars to form a fund, from which to pay the cost of promoting and carrying out research and investigation, the same to be known as the James Cooper Endowment for the study and teaching of internal medicine, the exact line of investigation to be determined from time to time by the McGill Medical Faculty."

The gift then is placed in the hands of the Medical Faculty as a body, free of succession duties, untrammelled by conditions, which have done so much to render other bequests of a similar nature of less use than they otherwise might have been. The sole condition upon which the present bequest is founded is briefly, for the purpose of investigation under the chair of clinical medicine. One cannot but comment on the wisdom of this method of bequest. While the investment of large sums of money donated to universities is a matter which should always be left to men of greater business ability than are most doctors, yet the specific uses of such sums are scarcely ever put to as good purpose by business men—let us say governors of a university—as by those who are more closely in touch with the needs of scientific work.

We are glad too, to find that the bequest concerns investigation, study and teaching, rather than the erection of fine buildings, which in themselves form by far the least important part of any university. While no definite arrangements have been made as yet for the distribution of the money, when it is handed over to the Faculty, it is generally understood that it will be devoted to fellowships or scholarships, to those of recent graduation who have special desire and aptitude to carry on this kind of work.

Physicians as a rule do not have much luck in the law courts. Two cases, in which suit was taken for the recovery of fees, have been decide adversely to the plaintiffs, at least the accounts were cut to one-third of the amount demanded. The more recent case was that of Dr. George O. Baxter, of St. John, N.B., who took suit against the executors of the Sullivan Estate for $2,420 and was awarded $750. The jury failed to agree that five dollars a visit was a reasonable charge or that eight visits a day were necessary. There is a greater prejudice in the courts against doctors' bills than against lawyers', but it would be interesting to note what would happen if a lawyer's bill were adju-

dicated upon in a medical society. It may be news to some that occasionally a doctor does overcharge, but from recent legal decisions it would appear that the interests of the public are pretty well safeguarded.

The College of Physicians and Surgeons of the Province of Quebec has another lawsuit on its hands. This time it is against the immigration inspector of the Canadian Pacific Ralway, Dr. Faber, and the charge is one of illegal practice, on the ground that his name does not appear in the Register. It appears that Dr. Faber has charge of the immigrants at Quebec who are ill and have to be deported. The Company contends that their medical officier is a well qualified man, that he is not engaged in practice as such is generally understood and that he is in reality a salaried officer, but before they are done with the case, they will get an insight into the Rules and Regulations of the College that will minister to their curiosity. If only the medical men of the Quebec district can make it clear that they are not actuated by the Spirit of Demetrius the silversmith, who saw his craft to be in danger, they will be doing a good turn to the profession at large.

A very full report of the proceedings of the Maritime Medical Association which was held in St. John, N.B., the 22nd and 23rd July, appears in this number of the Journal. This association has been in existence now for more than a dozen years and is always attended by more than a hundred members, most of whom find the long journey to the meetings of the Canadian Medical Association too great an encroachment on their time. Four visitors from Montreal who were to have been present, at the last moment were obliged to cancel their engagements. From the reports received it would appear that the meeting was a complete success, in respect of the scientific and general interest of the papers, the numbers in attendance, and the good feeling that prevailed. Though the Maritime Provinces do not constitute a very great medical centre, in so far as teaching and research are concerned—there is one good medical school at Halifax, however—there is no part of the Dominion in which the general level of the profession is higher.

It is one of the penalties of exalted station, that the occupant must submit his life to the most curious scrutiny. In the actual discharge of his public duty that fierce light must be borne, but it is pitiable that to great men the poor privilege is denied of dying in decent seclusion. The purveyors to the public taste, like the plague that afflicted the

Pharaohs, come up into their houses, into their bed chambers and upon their beds. But in truth the public taste does not demand the details of the sick-room, many of which are revolting, when separated from the case itself, and the public mind has been nauseated by having thrust upon it the unnecessary accounts of Pope Leo's illness and even the particulars of the autopsy itself. It was quite legitimate for the physicians in attendance to set forth from time to time bulletins to mark the course of the august patient from life to death, and probably they did nothing more. The rest was mostly an imaginary account of events that never took place, and only gave pain to all who were impressed by the serene and gentle life of the aged Pontiff.

The Calendar for McGill Medical Faculty for 1903-4, being the seventy-second session, has just been issued. In comparing it with the Calendar of last year, one notes several important alterations:—Prof. Chas. E. Moyse, becomes vice-principal, and Dr. Von Eberts replaces Dr. Ruttan as registrar. Dr. Starkey's name appears in the place of the late Wyatt Johnston's. Dr. Elder has been advanced to the position of assistant professor of surgery; Dr. McCarthy from being lecturer is now assistant professor of anatomy, and Dr. Halsey assistant professor of pharmacology and thereapeutics. Amongst the lecturers various new names appear: Dr. Kerry in pharmacology; Dr. MacKenzie in clinical medicine; Dr. McCrae in pathology; Dr. Shirres in neuro-pathology, and Dr. McTaggart in Medico-legal pathology. The fellows this year are: Drs. Thomas, Loeb and Charlton. Amongst the demonstrators and assistant demonstrators there are also several new names, J. R. Roebuck, B.A., in chemistry; Dr. Gordon in physiology; Dr. Archibald in surgery; Dr. Patrick in gynæcology, the two latter having been advanced from pathology and histology respectively. The other additions one notes are: Drs. Henry, Pennoyer, Barlow, Keenan, Gillies, Peters, Campbell, Grimmer and Jamieson. This strengthens the staff numerically up to 92 teachers. Another change is in the matriculation examination by which chemistry and physics are now compulsory instead of being optional as heretofore. The progress in the museum and in the library during the year has been very marked. The Calendar as a whole, is a fine record of the present high position of the Faculty.

Reviews and Notices of Books.

Disease of the Pancreas—Its Cause and Nature. By Eugene L. Opie, M.D. Lippincott & Co., 1903.

During the past few years the work of Opie of Johns Hopkins upon pancreatic pathology, appearing in scattered articles, has notably increased our knowledge of the subject; and the publication of this work in book form, with considerable enlargements and an exhaustive review of the literature, will be hailed by the profession with no small degree of satisfaction. The book is entirely praiseworthy. It is one which is eminently the result of original work, though including a very complete consideration of the work of others. Not all the diseases of the pancreas are discussed; cysts, new growths, acute suppurative inflammation, and tuberculosis are barely mentioned.

The anatomy and histology of the organ, the varieties of acute pancreatis, the ætiological relation of gall-stones to hæmorrhagic and gangrenous pancreatitis, fat necrosis, the varieties and ætiology of chronic pancreatitis, the pathology of diabetes mellitus; bronzed diabetes:—such are the main chapters.

The question of the anatomical relations of the two excretory ducts (Wirsung's and Santorini's), within the gland, and of the former with the common bile duct; and the length and diameter of the ampulla of Vater were especially investigated in 100 bodies in order to demonstrate by actual measurement that a gall-stone might occlude the ampulla without obstructing the pancreatic duct in certain cases. This condition anatomically would convert the bile and pancreatic ducts into one closed channel; and the entrance of bile into the pancreas may be followed, as Opie proves both experimentally and by the report of a case, by acute haemorrhagic pancreatitis. This last mentioned condition is fully discussed. It is Opie's especial credit to have conclusively demonstrated the mechanism by which cholelithiasis causes hæmorrhagic pancreatitis. Chronic interstitial pancreatitis he divides into the interlobular and the interacinar forms. The most frequent cause is obstruction of the duct of Wirsung by calculi or by cancer of the head or body. In the interlobular form, the islands of Langerhans escape, while in the interacinar form (which occasionally accompanies an atrophic cirrhosis of the liver) they are involved. The fact has a bearing upon the question of the pathology of diabetes mellitus. According to Opie's observations, the most constant lesion here is a destruction of the islands of Langerhans, which, he concludes have the function of regulating carbohydate metabolism. One can touch but very briefly

on particular points in the book; but it contains so much that is suggestive and informing that a full perusal must be warmly recommended as well to the surgeon as the physician. *E. W. A.*

A Text-Book of Legal Medicine and Toxicology. Edited by Frederick Peterson, M.D., Chief of Clinic, Nervous Department of the College of Physicians and Surgeons, New York; and Walter S. Haines, M.D., Professor of Chemistry, Pharmacy, and Toxicology, Rush Medical College. Two imperial octavo volumes of about 750 pages each, fully illustrated. W. B. Saunders & Company, 1903. Per volume: Cloth, $5.00 net; Sheep or Half Morocco, $6.00 net. Canadian agents, J. A. Carveth & Co.

For convenience of reference this treatise has been divided into two sections, I. and II., the latter being devoted to toxicology and all other portions of legal medicine in which laboratory investigation is an essential feature. Under "Expert Evidence" advice is given to medical experts, and sugestions to attorneys as to the best methods of obtaining the desired information from the witness. The Bertillon and Greenleaf-Smart systems of identification are concisely and intelligently described. An important chapter is that on "the destruction and attempted destruction of the human body by fire and chemicals." Another important chapter is that on the medicolegal relations of the x-rays. The responsibility of pharmacists in compounding prescriptions, in the selling of poisons, in substituting drugs other than those prescribed, furnishes a chapter of interest to everyone concerned with questions of medical jurisprudence. There is also included in the work an enumeration of the laws of the various States relating to the commitment and retention of the insane.

The above is taken largely from the publishers' announcement and certainly underestimates this important work. The chapter on railway injuries and the estimation of damages arising therefrom, is along the lines of the work of the late Wyatt Johnston, and of great value. There are sixteen contributors to the first volume, all men of eminence, and the editor, Dr. Peterson, has produced a work which is likely to become a standard in legal medicine. The same publishers have issued a smaller work on Medical Jurisprudence, Insanity and Toxicology, by Dr. Henry C. Chapman, professor of the Institutes of Medicine and Medical jurisprudence, Jefferson Medical College.

Diseases of the Liver, Pancreas, and Suprarenal Glands. Nothnagel's Encyclopædia of Practical Medicine. American Edition. W. B. Saunders & Co., Philadelphia.

In the present volume of the well known Nothnagel series, Prof. Fitz

edits Prof. Oser's monograph upon the pancreas. This work, published in 1898, is brought fully up to date by a review of the important work done since that date by Robson, Körte, Opie, Flexner, and others; making it the most complete treatise on the subject which has yet appeared.

The section upon diseases of the suprarenal glands, written by Neusser, of Vienna, is also edited by Fitz, with additions, including especially the recent work of Abel and Crawford, Takamine, and others on the active principles and thereapeutic uses of adrenal extract.

The monograph of Quincke and Hoppe-Seyler upon diseases of the liver was edited by F. A. Packard, whose untimely death occurred while the volume was going through the press. His additions, drawn from the more recent literature and especially from his own wide clinical experience, bring the subject fully up to date; and, to use the words of the general editor, Prof. Stengel, the resulting work has "no equal in our language." *E. W. A.*

Diseases of the Stomach. By Dr. F. Riegel, of Giessen. Edited, with additions, by Charles G. Stockton, M.D., Professor of Medicine in the University of Buffalo; octavo, 835 pages, illustrated, including 6 full-page plates. W. B. Saunders & Company, 1903. Cloth, $5.00 net; half morocco, $6.00 net. Canadian agents, J. A. Carveth & Co.

This volume forms one of the series which make up the American edition of Nothnagel's Practice of Medicine, which has been noticed so often in this journal. The German edition, "Specielle Pathologie und Therapie," has long been known as one of the most authoritative systems in existence, and it will soon be accessible in English in ten volumes. One volume is assigned to each of the following divisions: Typhoid and Typhus; Smallpox, Cholera, Erysipelas, Pertussis and Hay Fever; Diphtheria, Measles, Scarlet Fever and Röthelen; Diseases of the lungs; Diseases of the pancreas, suprarenals and liver; Diseases of the stomach; Diseases of the intestines and peritoneum; Influenza, Dengue and Malaria; Anæmia and other blood conditions; Tuberculosis. The whole series is under the general editorial direction of Alfred Stengel and each volume is sold separately, so far as published, at five dollars. One volume is, however, entirely rewritten by an American author on account of the publishers' arrangements. The volume dealing with diseases of the stomach is by Dr. Franz Riegel, of Giessen, and it is edited by Dr. Stockton, of Buffalo. The work stands pretty much as it is in the original, but something has been added to the sections in periodic vomiting of infancy, syphilis of the stomach, gastric ulcer and cancer, acute dilatation and operative procedures. It will be

readily understood that a book of over eight hundred pages, prepared by men of the highest authority, and dealing with one class of disease, leaves almost nothing to be said upon the subject of which it treats.

The Practical Application of the Rontgen Rays in Therapeutics and Diagnosis. By William Allen Pusey, A.M., M.D., Professor of Dermatology in the University of Illinois; and Eugene W. Caldwell, B.S., Director of the Edward N. Gibbs X-Ray Memorial Laboratory of the University and Bellevue Hospital Medical College, New York; octavo, 591 pages, 180 illustrations. W. B. Saunders & Co., 1903. Cloth, $4.50; sheep or half morocco, $5.50. Canadian agents, J. A. Carveth & Co.

Since the discovery of the X-rays by William Conrad Röntgen, professor of physics at the Royal University of Würzburg, in 1895, a vast body of literature has grown up in connection with their employment in medicine and surgery. For the first time it has been gathered together and set in order by Dr. Pusey, with the assistance of Mr. Caldwell. To review the book with any thoroughness would be to enter upon the consideration of a subject, which has absorbed the attention of physicists and physicians these seven years past, and is daily growing in importance. It must suffice for the present to say, that anyone who is interested in the X-rays, either as a scientific pursuit or as a means of diagnosis and treatment, will find in this volume all that is known and much that is surmised upon the subject. The clinical reports are very full, and confirm the growing impression that in these rays we have added to our store a method of treatment which in time will have a very wide application.

The American Year-Book of Medicine and Surgery for 1903. A yearly Digest of Scientific Progress, drawn from journals, monographs, and text-books of the leading American and foreign authors and investigators, under the editorial charge of George M. Gould, A.M., M.D. In two volumes—Volume I., including General Medicine; octavo, 700 pages, fully illustrated; Volume II., General Surgery; octavo, 670 pages, fully illustrated. Philadelphia, New York, London: W. B. Saunders & Co., 1903. Per volume: Cloth, $3.00 net; half morocco, $3.75 net. Canadian agents, J. A. Carveth & Co., Toronto.

This year-book bears the date of 1903. It would be more strictly descriptive if it bore the imprint 1902, and it would be no great departure from the truth if 1901 were employed. But two such handsome volumes cannot be made in a day. A rather careful search for

reference to work done in Montreal discloses mention of seven items, rodent ulcer of the nose, a new position for gynæcological operations, an operation for vesico-vaginal fistula, dilatation of the heart, porencephalus, a classification of intoxicants, and goitre. If we might speak the truth in love, the impression made upon the editor, Dr. Gould, by the work done here during the past two years in respect of its importance, is slightly different from that entertained by local observers.

Practical Points in Nursing. For Nurses in Private Practice. With an Appendix containing Rules for Feeding the Sick; Recipes for Invalid Food and Beverages. By Emily A. M. Stoney, late Superintendent of the Training School for Nurses, Carney Hospital, South Boston, Mass. Third Edition; 458 pages, fully illustrated. W. B. Saunders & Company, 1903. Cloth, $1.75 net. Canadian agents, J. A. Carveth & Co.

In spite of its inapt title this book must be invaluable to a nurse. The author has a profound knowledge of the nature of a nurse and says many things a physician would hesitate to say, for fear of laying himself open to the charge of evil speaking. If a nurse did but follow all the counsel contained in this little book, she would be but little lower than an angel. There are many things in the book which it is not lawful for a physician to know; certainly the weaknesses of the nurse are faithfully dealt with and, as a class, they would do well to lay Miss Stoney's counsels to their hearts, for she is a faithful friend. The elaborate precautions recommended in "killing" a leech are quite justifiable from a woman's point of view. He is a fearsome beast, but salt is employed not to kill the creature, but to make him disgorge the blood and save his life for a future occasion.

Modern Materia Medica and Therapeutics. By A. A. Stevens, A.M., M.D., Lecturer in Physical Diagnosis, University of Pennsylvania; Physician to the Episcopal Hospital and to St. Agnes Hospital. Third Edition, entirely re-written; octavo, 663 pages. Cloth, $3.50 net. W. B. Saunders & Co. Canadian agents, J. A. Carveth & Co.

The old method of the classification of drugs, in alphabetical order, had simplicity to recommend it, but little more, and the present author has abandoned it for an arrangement based upon pharmacological action. The work is distinctly modern, and though the old drugs receive due consideration, the newer preparations, which are becoming so familiar, have ample mention. A book of this kind has come to be a real necessity, for a searcher into the merits of new preparations

has been largely left to manufacturers' circulars, which, as a rule, are not remarkable for calmness and scientific candor. After a course of such reading, this book will prove to be a useful corrective, for Dr. Stevens certainly displays a great lack of enthusiasm in regard to many of the new drugs.

ATLAS AND EPITOME OF HUMAN HISTOLOGY AND MICROSCOPIC ANATOMY. By PRIVATDOCENT DR. J. SOBOTTA, of Würzburg. Edited, with additions, by G. CARL HUBER, M.D., Junior Professor of Anatomy and Histology, and Director of the Histological Laboratory, University of Michigan, Ann Arbor. With 214 colored figures on 80 plates, 68 text-illustrations, and 248 pages of text. Philadelphia and London: W. B. Saunders & Co., 1903. Cloth, $4.50 net. Canadian agents, J. A. Carveth & Co.

A work in histology is largely a matter of illustration, and the plates in this book are beautiful, besides being true. Nothing could exceed the fidelity and artistic quality of the drawings, and the work retains the concise and accurate text of the original German edition. It forms one of the series of Saunders' medical hand-atlases, and is quite up to the standard of any that has previously appeared. The same publishers issue an atlas and epitome of diseases of the mouth, pharynx and nose.

THE CARE OF THE BABY. A Manual for Mothers and Nurses. By J. P. CROZER GRIFFITH, M.D., Clinical Professor of Diseases of Children in the Hospital of the University of Pennsylvania; Physician to the Children's Hospital, Philadelphia. Third Edition, Revised; 12mo., 436 pages, fully illustrated. W. B. Saunders & Co., 1903. Cloth, $1.50 net. Canadian agents, J. A. Carveth & Co.

This is the third edition of a book already well known. It is intended primarily for parents, but physicians also will find much useful information, which they are very liable to underestimate or overlook.

TUBERCULOSIS: Recast from Lectures Delivered at Rush Medical College. By NORMAN BRIDGE, A.M., M.D. 302 pages, illustrated. W. B. Saunders & Company, 1903. Cloth, $1.50 net. Canadian agents, J. A. Carveth & Co.

Each disease is now having a book to itself, instead of summary mention with all other diseases. This volume by Norman Bridge deals with Tuberculosis in a comprehensive way. Taking account of the theories of the condition and of its treatment, as well as of the neces-

sity for the protection of the community against infection the discussion of diagnosis is thoroughly sound; the tuberculin and agglutination tests are fully considered as well as the weightier matters of auscultation and general clinical observations. The folly of a tuberculous patient changing his habitat for the sake of a change, and enduring the misery of travel and residence in strange places apart from comforts and good advice, is well brought out. The book is marked by good sense in every page.

Medical News.

MARITIME MEDICAL ASSOCIATION.

The thirteenth annual meeting of the Maritime Medical Association was held in St. John, N.B., Wednesday and Thursday, 22nd and 23rd July, 1903. The following are the officers under whose direction the meeting was held: President, Murray MacLaren, M.D., M.R.C.S., St. John; vice-president, for New Brunswick—R. L. Botsford, M.D., Moncton; for Nova Scotia—G. M. Campbell, M.D., Halifax; for P. E. Island—P. C. Murphy, M.D., Tignish; hon.-treasurer, C. A. Macphail, M.D., Summerside; honorary secretary, T. D. Walker, M.B., St. John. Local committee: W. W. White, M.D., J. R. McIntosh, M.D., W. A. Christie, M.D., J. W. Daniel, M.D., J. P. McInerney, M.D., G. A. B. Addy, M. D. Local secretary, J. H. Scammell, M.D.

There were 113 members present; their names and addresses being as follow:—

Alex. Murray, Leonardville; J. G. Nugent, Briggs Corner; S. C. Murray, Albert; F. E. Norris, St. John; M. Chisholm, Halifax; A. R. Myers, Moncton; J. P. McManus, Blackville; W. E. Crockett, Fredericton; A. P. Crockett, St. John; H. Geo. Addey, St. John; M. E. MacLeod, St. John; L. W. Johnston, Sidney Mines; Thos. Treauman, Halifax; Wm. Bayard, St. John; Smith Anderson, Pictou; J. W. Daniel, St. John; F. S. Ford, New Germany; John Stewart, Halifax; Fred. White, Moncton; A. B. Atherton, Fredericton; F. H. Wetmore, Hampton; G. D. Rarkin, Woodstock; W. A. Christie, St. John; O. Y. McCarry, St. John; E. B. Fisher, Fredericton; G. M. Duncan, Bathurst; P. R. Inches, St. John; Geo. Meloin, St. John; W. E. Armstrong, Bridgetown; J. A. McIntyre, St. John; Wm. Christie, St. John; J. R. McIntosh, St. John; J. C. Dixie Murray, Halifax; Stewart Skinner, St. John; F. L. Kenney, St. John; T. E. Bishop, St. John; J. A. Macnaughton, Salisbury; R. R. Richardson, Boston; R. G. Day, St. John; D. G. Berryman, St. John; M. Sheffield, St. John; J. H. May,

St. John; B. M. Mullin, Fredericton; G. V. McNally, Fredericton; R. H. McGrath, Fredericton; G. C. Van Wort, Fredericton; W. L. Morrison, St. John; W. W. White, St. John; G. G. Corbet, Fairville; W. M. Deinstask, St. Stephen; A. M. Hebb, Chester; J. F. McCaulay, St. John; P. H. Warneford, Hampton; J. P. Reynolds, Lepeau; C. MacL. Arnold, Amherst; F. H. Wheeler, St. John; J. E. Deyas, Amherst; H. D. Fritz, St. John; H. G. Folkins, Belleisle Creek; D. D. McDonald, Petitcodiac; Jno. C. Mott, St. John; J. W. Macneill, Keswick Ridge; Geo. O. Dibben, Moore Mills; M. Case, St. John, N.B.; J. W. Bridges, St. John, N.B.; F. F. Kelly, St. John, N. B.; L. A. Macalpine, St. John; C. J. Robert, St. John; Thos. Lunney, St. John; J. E. M. Cornwath, Riverside; J. A. McKenzie, Halifax; Wm. J. Barton, Pubruco; L. R. Morse, Lawrencetown; W. B. Moore, Kentville; O. R. Salbi, Orford; A. Ross, Alberton; Chas. Fox, Pubruco; C. L. Purdy, Moncton; A. F. Emery, St. John; R. W. Earle, Newcastle; N. E. Mackay, Halifax; W. H. McDonald, Rose Bay; L. M. Curran, Westfield; L. W. Heart, Norton; Jas. Ross, Halifax; Harry McNally, Fredericton; S. C. Primrose, Annapolis; Thomas Walker, St. John; Clara Olding, St. John; Margaret Parks, St. John; A. Gallant, Meteghan; F. S. Wade, Port Maitland; Robt. Botsford, Moncton; Murray MacLaren, St. John; G. E. Dewitt, Wolfville; B. S. Thorne, Butternut Ridge; J. A. Turnbull, Bear River; J. M. Deacon, St. Stephen; 'John Sutherland, St. Stephen; J. Henry Scannell, St. John; T. D. Walker, St. John; P. C. Murphy, Tignish; S. W. Burgess, Great Shemaque; J. P. Inerney, St. John; D. T. Walker, Halifax; A. J. Corne, Halifax; Geo. Campbell, Halifax; Thos. Murphy, Halifax; G. H. B. Addy, St. John; H. R. McDonald, Lunenburg; R. H. Burrell, Lunenburg; J. A. Sponagh, Middleton; E. R. Faulkner, Mahone Bay.

The opening session began at 10 a.m. on Wednesday with the enrolling of members, the reading of minutes and the reception of delegates from sister societies. The following nominating committee was then appointed: A. B. Atherton, Fredericton; J. R. McIntosh St. John; Dr. Duncan, Bathurst; C. D. Munro, Halifax; M. Chisholm, Halifax; George De Witt, Wolfville; P. C. Murphy, Tignish; S. R. Jenkins, Charlottetown; H. D. Johnson, Charlottetown.

A committee on by-laws was also appointed composed of Dr. T. Walker, Dr. De Witt, Wolfville, and Dr. Murphy.

The President referred in feeling terms to members who had died since last meeting. These were W. S. Harding, St. John; C. A. Macphail Johnson, Summerside; C. J. Fitzgerald, Amherst; F. J. Leery, Fredericton; Richard Johnson, Charlottetown, and Dr. W. O. Price, Havelock. Of these Dr. Macphail Johnson died in South Africa of enteric fever.

The President then read his annual address, his subject being the Maritime Medical Association, its past and present. He welcomed the visitors to St. John, and hoped that they would return to their homes cherishing pleasant memories of the meeting. He then outlined a history of the Association from its beginning and showed how well it was fulfilling its function. He commended the practice of inviting visitors from other provinces, as one of their objects was to draw closer the medical relations throughout Canada. Dr. Roddick's Bill came in for commendation as a measure which would benefit all. He urged upon the Government of New Brunswick to establish a sanitarium for tuberculous diseases, the same as that in Nova Scotia. He referred to the epidemic of smallpox in the province and made a strong plea for general vaccination. The President then took under consideration board of health matters, and urged that political influence be set at one side and that they should receive financial and other support.

Dr. William Bayard read a paper upon Pure Air as an essential to the well-being of man. Dr. Bayard has completed sixty years of practice and received a very warm reception from the members.

Dr. F. H. Wheeler's paper upon Rheumatism was postponed on account of the absence of the writer.

Dr. Geo. M. Campbell gave a case report of multiple aneurysm of the aorta and showed the specimens.

Dr. G. A. B. Addy gave some notes on a case of obstructed ureters, with presentation of pathological specimens and in the discussion which followed, Dr. P. R. Inches referred to a case, in which total suppression had occurred, due to the involvement of the ureters in an inflammatory mass. An operation was undertaken with success.

A paper on Methyl alcohol poisoning, was read by Dr. W. E. Armstrong, Bridgetown, and was discussed by Dr. Crawford, and Dr. W. P. Rankin, Woodstock. The latter spoke of two similar cases, one proving fatal in a few hours, the other recovering in a few days with loss of vision. As an outcome of the paper and discussion, Drs. Armstrong, Daniel and Murphy were appointed to confer with the Government about indiscriminate sale of this poison.

Dr. S. S. Skinner gave two case reports, the one upon Renal Fistula, the other upon methial calculus. Dr Skinner also showed an ovarian tumor removed by Dr. Cushing, of Boston. Dr. Cushing described the operation.

A paper on the sanitarium treatment of tuberculosis was read by Dr. De Witt. He thought infection occurred altogether too frequently and suggested that public institutions be constructed.

It was moved by Dr. Cowie, Halifax, and seconded by Dr. B. S.

Thorne, that in view of the importance of obtaining proper legislation for the public health there is a necessity for the establishment of a bureau of vital statistics. Therefore, resolved, that a committee of five members be appointed from the provinces of New Brunswick and P. E. Island to act in concert with a committee already appointed by the Nova Scotia Medical Society to obtain the passing of such act by their respective governments, as will result in the establishment of such a bureau, and also to have power to make such changes and additions to the Health Act as will place tuberculosis on the list of contagious diseases and make the act effectual for stamping out the disease.

Dr. Cowie explained that the Health Act is a dead letter in Halifax, except, when smallpox crops up around the city. He strongly urged that the desired legislation regarding tuberculosis be speedily obtained.

Dr. Murphy thought that a board for each of the provinces was the only feasible plan, not one for the three provinces.

Dr. Cowie said that the intention was to have separate provincial boards, but said that Nova Scotia already had such a committee, appointed by the Nova Scotia Medical Society. A committee of five: Dr. F. W. Daniel, Dr. W. D. Rankine, Woodstock; Dr. Smith, Moncton; Dr. Lawson, St. Stephen; Dr. W. A. Christie, was appointed for New Brunswick.

For Prince Edward Island the committee is Dr. Warburton, Dr. S. R. Jenkins, Dr. Connolly, Dr. Robertson and Dr. Johnson.

AFTERNOON SESSION.

Dr. Geo. Neville, St. John, read a paper on Differential Diagnosis of Smallpox. He considered smallpox due to a protozoa, and essentially, a disease of the skin. He thought that measles, scarlatina, chickenpox and smallpox all come from one primeval congenitor and were not so sharply defined in olden times as at present. He quoted Councilman as proving smallpox a disease of the skin. He gave a good clinical picture of the appearance of the rash and laid stress upon the papules appearing upon the palms of the hands and the soles of the feet. He advocated compulsory vaccination very strongly.

Dr. E. B. Fisher, Fredericton, read a paper on Smallpox. As a health officer he said the amount of money spent in stamping out epidemics had brought unjustifiable criticism. He thought the disease was becoming milder, due to progressive vaccination of several generations, and he advocated compulsory vaccination. He noted cases in the recent epidemic in which unvaccinated members of a family took

the disease, while those vaccinated escaped. He showed several photos taken atdiffe rent stages of the disease.

Drs. Chisholm and Morris discussed both the foregoing papers, the former not agreeing that smallpox was a skin disease, the latter saying that pain in the back was not always present and that faulty vaccine was productive of much harm.

Dr. Murphy said pain in the back was not peculiar to smallpox alone and Dr. McNally, Fredericton said he had produced successful vaccination in some of the so-called smallpox cases. Dr. Christie said it was impossible to diagnose some of the cases in the early stages, in the recent outbreak. Dr. Daniel, St. John, quoted cases where persons who had smallpox and a few years afterwards were successfully vaccinated. The action of the Health Board should be sustained, he thought. Dr. Wetmore also quoted cases.

Dr. Murphy, Tignish, discussed two cases: (1). an unusual termination of perforating appendicitis; (2). an unexplained Brady-cordia. In the first case patient had all the symptoms of perforation and recovered without surgical interference. In the second, the patient's pulse went down to 15 with pseudo-epileptic attack and remained at 25 for some days and then came back to normal.

Dr. Murray knew of a patient who suffered from Brady-cordia and at post-mortem showed degenerated heart, and coronary arteries very small. Drs. T. D. Walker and Murphy, advocated operation in cases of appendicitis.

Dr. W. C. Crockett, Fredericton, read a paper on Extra Uterine Gestation, with account of three cases operated upon by abdominal incision and all made good recoveries.

A paper on Tuberculous Cystitis, was read by Dr. John Stewart, Halifax. He said this was a condition hard to diagnose, tedious in course, and in treatment unsatisfactory. The condition usually came from ureters, vesiculi seminales or prostate by lymphatics. The trigone was usually first affected and with miliary type. Perforation was rare but fistulæ might form. Death was brought about by spreading of the disease. The symptoms were: increased frequency, diminished expulsive force, hematuria with low specific gravity pyuria in later stages. Many cases have been treated when the disease was in the kidney. The bacillus was best found by culture medium. For treatment, he recommended irrigation with bichloride, or silver nitrate. Some authors were against local treatment, methylene blue and salol might be taken internally; when these failed a suprapubic cystotomy was the best operation.

Dr. O. J. McCully, St. John, read a paper on "The Clinical Signi-

ficance of Vertigo." He considered most cases due to affections of semicircular canals, but also found in affections of eye in which case he found nystagmus, and double vision. There was also a dyspeptic form due to indigestion in which a patient might lose consciousness. It might be central due to intercranial tumor, or softening, or it might be reflex coming from any part of the body. In any given case one should examine the eye, the ear, the digestive and nervous systems.

Dr. T. Walker referred to vertigo found in aged persons with arteriosclerosis, due to weak circulation in the brain.

Dr. MacLaren laid emphasis on worms being the cause.

Dr. McCully said it was found also in gouty subjects.

The by-laws drawn up by the committee governing the association were then read and taken up separately and passed.

EVENING SESSION.

Borderland Mental Conditions was considered by Dr. J. A. McKenzie, Halifax. He said it was very difficult to draw the line between sanity and insanity, as everyone had insane impulses at times. Geniuses were very often nearer the borderline than those of less mental capacity. Authorities divided these cases into three classes: Those suffering from doubt or indecision; those from fear; those subject to morbid impulses. They must not come to a conclusion too hastily, and in case of crime they should give the patient the benefit of the doubt. Paresis could be diagnosed from hysteria, as in the former marked symptoms soon appear. As to treatment it should be general and local. Prognosis was bad if general health was bad. Treatment should be varied, tonic one week and sedative the next. He recommended outdoor exercise, change of scene, hydrotherapy, massage and electricity.

Renal Calculus and Pyonephrosis was treated by Dr. N. S. McKay, Halifax. He gave an account of a case of a pregnant woman, who showed symptoms of pyonephrosis. After confinement she was operated upon and left kidney found to be a bag of pus. This was removed and a drainage tube inserted. The secreting substance of the kidney was all gone. About a month later the patient had pain and tenderness over the right kidney which on palpation appeared three times the normal size. Patient was operated upon a second time and a calculus weighing 13 oz. was removed from pelvis of right kidney. It was about 4 in. long, $\frac{3}{4}$ in. thick and $2\frac{1}{2}$ in. wide. Great hæmorrhage followed, and the patient was saved only by the greatest care and attention.

The case was of interest on account of the size of the stone and the

small amount of secreting kidney substance left, as the left kidney was all gone and the right nearly so.

A discussion was held upon "The Early Manifestations of Pulmonary Tuberculosis." Dr. P. R. Inches laid stress on the use of tuberculin test and X-ray as well as general examination.

Dr. T. Walker followed and quoted figures to show that tuberculosis was on the wane in Germany and the United States. He thought diminution was due to early diagnosis, and considered hæmoptosis hoarseness as important diagnostic signs, but he was afraid of the tuberculin test.

Dr. J. P. McInerey discussed the confusion between the early stages of phthisis and typhoid fever.

Dr. Dewitt brought up the question as to whether or not pleurisy was always caused by tuberculosis, and considerable discussion followed. The tuberculin test was discussed by Drs. Chisholm, Inches, Walker, MacLaren, and McInerey.

The next paper was upon "Puerperal Eclampsia," by Dr. A. Ross, Alberton. He gave the many theories as to the causation of the condition. He laid particular stress upon early and frequent examinations of urine, for if condition is diagnozed early, he said, the life of the patient might be saved. He gave the treatment and recommended early emptying of the uterus, and gave an account of ten cases with only one death where this method was followed. Drs. More, Deacon and others, spoke highly of the benefits derived in these cases from veratrum viride even where all other means had failed.

The members were given a reception by the president at 75 Cobourg street, after the evening meeting.

SECOND DAY. THURSDAY, JULY 23RD.

A letter from Dr. McNeill was read, suggesting that the Association take some action in assisting Dr. Roddick with his registration bill. This led to a discussion, and finally a motion was carried to have the secretary draft a resolution to be sent to the Dominion Government, asking that Dr. Roddick's bill be put in force in those provinces which approved of it.

The secretary read the treasurer's report, which showed that the Association had a balance on hand.

The nominating committee presented its report and the following officers were declared elected:—President, Dr. Geo. M. Campbell, Halifax; Vice-Presidents, Dr. W. H. McDonald, Rose Bay, N.S.; Dr. A. F. Emery, St. John; Dr. Alex. McNeil, Summerside, P.E.I.; Treasurer,

Dr. John Sutherland, Bedeque, P.E.I.; Secretary, Dr. T. D. Walker, St. John.

Considerable discussion arose over Dr. G. A. B. Addy's motion that the proceedings of the Society be sent in pamphlet form to the members and this was finally passed.

Dr. Cushing of Boston, extended the Association an invitation to hold their meeting in Boston in 1905, but Dr. Daniel said the constitution would have to be altered to enable them to accept the invitation.

The first paper read was by Dr. Geo. K. Grimmer of Montreal, on treatment of nasal deformities by subcutaneous injection of hard paraffin. He said the results were very marked, especially in deformities resulting from specific disease. He discussed his experiments on rabbits with paraffin of different melting points. He employed a metal syringe covered with rubber, and said the operation could be done with or without anæsthetic, and that accidents were few, that of venous embolism being the one most to be dreaded. Several photographs of patients treated by the method were shown. In answer to Dr. Walker's question, Dr. Grimmer said, though he had never tried it himself, he had read accounts of prolapse of the uterus having been successfully treated with hard paraffin.

Dr. A. B. Atherton followed with reports of two cases of abdominal traumatism. The first case was that of an old man whose small intestine had been ruptured by the rebound of a musket. The gut was sewn up and drainage tube left in. Later, an abscess formed and an opening had to be made in the back to allow of drainage, but the patient was troubled for some months with a fistula discharging fecal matter. Dr. Atherton thought the fistula was due to the drainage tube, and he advised having no drainage if the abdomen could be cleaned out. Success depended upon the operation being done early, and there was much hope if it were done 36 hours after the time of accident.

The second case was one in which a man had been shot through the back, the bullet remaining in the body. The abdomen was opened and the stomach was found to have been pierced. This was sewn up and the patient recovered.

Dr. E. W. Cushing of Boston, then read a paper on the latest methods of removal of the uterus for Malignant Disease. In early operations, he said, most cases died of recurrence, owing to some diseased tissue being left. Both vaginal and abdominal operations had been tried, the former finding most favor; but there were complications, narrowness of the vagina and proximity of the tuberosities of the ischium. Through the abdominal incision he severed all connections of uterus to other parts, taking great care to include all infected tissue. The uterus was

then removed by the vagina. In very fat or weak patients palliative methods only should be used. He advocated the use of clamps, and said the great trouble was the infecting of the cut surfaces, when the abdomen was opened the hard ligaments and glands at the bifurcation of the iliac arteries should be examined, and if much involved, the operation would be useless, vaginal examination alone could not be depended upon, as he had known cases in which, what was thought to be the external os, was really the internal, the former having dilated to that extent. He tied all the arteries possible, but never the internal iliac. In bad cases, he placed a pad of gauze over the fundus and pushed uterus down without opening the vagina. In the after treatment the vagina was tamponed with gauze. By way of conclusion, Dr. Cushing said that cancers of long standing, even though small, were far more dangerous than larger ones of rapid growth. Many plates were passed around during the reading of the paper, showing various pathologic conditions.

A vote of thanks was passed, thanking Drs. Grimmer and Cushing for their papers. Dr. J. R. McIntosh, presented two cases; aneurism of the orbit and congenital nasal obstruction. Both cases were shown and examined with great interest. The first was an infant of five months. Dr. McIntosh said only 200 cases of this kind had been reported, and that it was one hard to diagnose. The tumor pulsates during sleep and does not impair the movements of the eye. Electrolysis was thought to be the only treatment. Dr. Sponagle Major, A. M.S., read a paper upon the subject, Should Military Drill be made compulsory in schools. He rather favored that view, and thought that squad and company drill at least should be taught. It favored development of the body, and helped to solve the national defense question.

Case reports of syphilis with remarks, was read by Dr. James Ross of Halifax, and he gave accounts of cases treated for different affections which recovered under anti-syphilitic treatment.

AFTERNOON SESSION,

The afternoon session opened with two short papers. A case report of extra uterine gestation, by Dr. F. Kelly, Charlottetown; and the second one on gall-stones, by Dr. T. J. F. Murphy, Halifax.

Dr. Maurice H. Richardson of Boston, followed with a paper on the surgical treatment of diseases of the biliary passages, but on account of the limited time at his disposal, he was obliged to leave out many parts. He said that stones might be present and cause no symptoms, yet suddenly cause obstruction of the intestine, a slight dyspepsia might be the

only symptom. Physicians were more careful about diagnosis than formerly, as operations were more frequently undertaken than in the past. The most important diagnostic point was discomfort in the region of the gall-bladder, which could not be accounted for. The stone might be in the common duct without any jaundice as the stone might act as a valve allowing the escape of bile.

Cancer of the head of the pancreas and chronic pancreatitis had to be eliminated. In diseases of the biliary passages, the head of the pancreas was nearly always enlarged, and cancerous looking, but both these conditions often disappear after the operation. The contra-indications for operation were few, and it should be a question of "when not whether." Stones in the cystic and hepatic ducts were often overlooked. Dr. Richardson does not sew up the bladder, but drained it, as it could not be made tight by sewing.

In discussion of this paper, Dr. Daniel asked if it was ever impossible to remove the stone from cystic duct, and if biliary fistulæ ever remained.

Dr. Chisholm quoted one case of stricture of common duct. Dr. Atherton had a case of jaundice with no pain; the stone was found in the common duct. He also asked Dr. Richardson if he used chloride of calcium in those cases. Dr. March quoted cases, and Dr. MacLaren and Dr. Murphy also joined in the discussion.

In reply, Dr. Richardson said he had seen a few cases of biliary fistulæ, and that in cases of stone of the cystic duct he removed the bladder. He did not employ chloride of calcium.

A vote of thanks was passed, and Dr. Richardson was made an honorary member of the Association.

A discussion took place about the conditions which simulate appendicitis. Dr. Daniel and Dr. Chisholm opened the discussion and were followel by Dr. Cushing, Dr. Richarlson and Dr. Van Wart.

On account of the rain, an afternoon tea was given to the ladies at Dr. Scannell's residence, instead of at the Golf Club as previously arranged.

The following committee of management was reported elected:—Dr. Carleton Jones, Dr. Murray, Dr. Kirkpatrick, Dr. Curry, Dr. Murphy, with Dr. G. L. Campbell as local secretary.

Votes of thanks were passed to the Union Club, for their courtesy to the visiting members, to the president and secretary and the railway companies. The meeting then adjourned.

The members went for an excursion on River St. John after the afternoon's session, leaving at 4.30 and returning at 11 p.m.

CANADIAN MEDICAL ASSOCIATION.

The following is the preliminary programme of the thirty-sixth annual meeting of the Canadian Medical Association, to be held in London, August 25th, 26th, 27th and 28th, 1903:—

President's Address.—R. H. Morehouse, London.

Address in Medicine.—Jas. Stewart, Montreal.

Address in Surgery.—Alex. Hugh Ferguson, Chicago.

Address in Gynæcology.—Matthew D. Mann, Buffalo.

The Treatment of the Inebriate.—E. Roseburgh, Toronto.

Paper (title to be announced).—Perry O. Goldsmith, Belleville.

Total ablation of bisecting the uterus.—T. Shaw Webster, Toronto.

Inguinal Hernia of an undeveloped uterus and appendages.—H. Ferguson, London.

Paper (Title to be announced).—A. Lapthorne Smith, Montreal.

Report of two cases of hour-glass contraction of stomach.—Henry Howitt, Guelph.

Cardiac affections in Influenza.—H. G. Wood, Nashville, Tenn.

Amyotrophic Lateral Sclerosis.—A. McPhedran, Toronto.

Orthopedic Surgery.—C. W. Wilson, Montreal.

Internal medication for direct remedial effect.—Geo. M. Aylesworth. Collingwood.

The Role of eye—strain in civilization and medicine.—Geo. M. Gould, Philadelphia.

The Inter-relations of Diabetes and other constitutional states.—Geo. F. Butler, Alma, Mich.

Gunshot wound of the upper arm, with non-union of humerus and destruction of musculo-spiral nerve—operation 5 months later: Recovery. Hadley Williams, London.

Discussion on the treatment of Typhoid Fever.—W. P. Caven, Toronto; J. Herald, Kingston; W. B. Thistle, Toronto; H. A. McCallum, London.

Discussion on the Diagnosis and treatment of Tubercular Peritonitis.—A. B. Atherton, Fredericton, N.B.; A. Groves, Fergus; Herbert A. Bruce, Toronto, and L. Coyteux Prevost, Ottawa.

The Technique of Gastro-Enterostomy.—Theodore A. McCraw, Detroit.

The relation between the general practitioner and the specialist in regard to intra-nasal work.—J. Price Brown, Toronto.

Personal experience with Alexander's operation.—H. Meek, London.

Auto-infection.—Z. Hornibrook, Cherokee, Iowa.

The Country Doctor.—J. S. Sprague, Stirling.

A lantern lecture on open air life in the treatment of Pulmonary Tuberculosis.—J. H. Elliott, Gravenhurst.

The size of the pupil as an aid to diagnosis.—T. G. Duncan, Toronto.

Thrombosis of the femoral vein following aseptic Laparotomy.—E. B. Secord, Brantford.

Gastro-Enterostomy with report of cases.—Ingersoll Olmstead, Hamilton.

Radical Cure of Hernia.—A. Groves, Fergus.

In regard to railway arrangements, all a delegate has to do is to purchase a single first-class ticket to London at the same time asking the agent at starting point for a standard convention certificate. These certificates when signed by the general secretary will entitle holders to return fare free, providing there are 300 or more at the meeting holding certificates. These arrangements also apply to the wives and daughters of physicians.

Delegates travelling to London on the standard certificate plan via the Intercolonial Railway to Montreal will be given return fare free from Montreal east, provided that there are ten or more delegates in attendance at the meeting holding said certificates.

From Manitoba and the Canadian Northwest one way tickets to be purchased in London and standard certificate being secured at the time of purchase, these certificates when presented at London duly signed by the general secretary, will entitle the holder to return free if 300 or more paying railroad fare, are in attendance. If less than 300 and more than 50, the same arrangements as for Ontario and Quebec: one-third fare return will be in vogue. Tickets purchased west of Port Arthur in time to reach London for the convention will be accepted for return up to and including September 15th. Delegates taking the Superior and Huron Lake routes one way will, on presentation of certificate, be charged $4.25 extra. If Lake route is used both ways the charge will be $8.50 extra.

The Canadian Pacific Railway officials at Winnipeg have not been able to make arrangements for British Columbia up to the present time. Announcement of these will be made in the daily papers of Vancouver and Victoria, if secured, some time during the first week in August.

The Entertainment Committee proposes to entertain visiting delegates somewhat as follows: On Wednesday afternoon a reception will be held at the Kennels for the visiting ladies by the ladies of London. On the same afternoon at about 4 p.m. the members of the Association will be entertained at Springbank, London's pleasure resort. Leaving

Springbank at about 3.30 p.m. the delegates will be taken to the London Asylum grounds, where they will be entertained by the Provincial Government for the balance of the evening. On Thursday the entertainment committee have provided for an excursion to the laboratories of Parke Davis & Co., at Walkerville and Detroit. Arrangements have been made for a special vestibuled train to leave London at 8 a.m., Thursday. Walkerville will be reached at about 10.30 a.m. The delegates will then be taken for a trip up the river, luncheon to be served on board. They will be landed at Detroit at 2.30 p.m. Other arrangements will be made for the entertainment of the members until 6.30 p.m., when a banquet will be tendered to the members at the Russell House, Detroit. Between 9.30 p.m. and 10.30 p.m. the physicians will be taken to the depot and returned to London by special train.

During the meeting the several large hotels will be able to accommodate most of the visiting members, and in addition to this the Reception Committee having charge of receiving the visiting delegates will have lists of good boarding-houses where those wishing them may have rooms. The reception committee at London hopes that no one will stay away fearing the lack of accommodation as the London medical men will do their utmost to make their stay agreeable. Dr. J. S. Niven, 423 Colborne St., who is chairman of the reception committee, will be pleased to secure rooms for anyone writing for them in advance. Any one desiring any further information should address either the local secretary, Dr. Hadley Williams, Park Avenue, London, or the general secretary, Dr. George Elliott, 129 John St., Toronto.

BITISH MEDICAL ASSOCIATION.

The seventy-first annual meeting of the British Medical Association was held at Swansea, Wales, on Tuesday, Wednesday, Thursday and Friday, July 28th, 29th, 30th and 31st, 1903, under the presidency of Thomas Dryslyn Griffiths. The address in Medicine was delivered by Frederick J. Roberts; that in Surgery, by A. W. Mayo Robson. In the section of medicine the subjects down for discussion were: the medical treatment of inflammation in the cæcal regions; susceptibility and infection, and the treatment of gastric ulcer. Under the Surgical Section the discussions turned upon: practical experiences regarding the most satisfactory methods of performing intra-abdominal anastamosis and the treatment of advanced tuberculous disease of the knee joint. In Obstetrics and Gynæcology the discussion was upon the management of pregnancy complicated with uterine fibroids, and upon

the diagnosis and treatment of tuberculosis of the uterus and adnexa. In the subject of State Medicine, smallpox prevention, rivers and seashore polution and food adulteration were all up for discussion. In the section of Psychology, the pathology of general paralysis, alcohol in its relation to mental diseases and the care and treatment of incipient insanity were all discussed. In Pathology, splenic anæmia and the pathology of miner's diseases were considered. In Ophthalmology the subjects were: eye changes in relation to renal disease, the operative treatment of conical cornea and the treatment of strabismus. In the section for Diseases of Children the pathology and treatment of chorea and congenital dislocation of the hip with especial reference to the Hoppa-Lorenz operation, were down for discussion along with tuberculosis in children and its relation to bovine tuberculosis. In Laryngology and Otology, the operative treatment for malignant disease of the larynx was introduced by Sir Felix Semon and the technique of operation on the temporal bone in suppurative middle ear disease by P. McBride and Arthur Hartmann, of Berlin. In matters proper to the Navy, Army and Ambulance, a discussion was held on Mediterranean fever, and on the equipment and training of medical units attached to volunteer infantry brigade. In the section on Tropical Diseases the examination of blood for micro-organisms received full discussion and Mr. Hutchison elaborated his well known views upon leprosy.

Numerous papers were read upon all these and cognate subjects and, judging from the programme, the meeting of this venerable association must have been a very satisfactory one.

NOVA SCOTIA MEDICAL SOCIETY,

The annual meeting of the Medical Society of Nova Scotia, was held on the first and second of July, in Antigonish, with two of the local physicians, Drs. J. J. Cameron and W. Huntley Macdonald, as President and Secretary respectively. It proved a great success in every way, for though the number of members present was not equal to what has been recorded, when the gathering has been held in one of the cities, there were representatives from the farthermost extremes of the province and the papers, as a whole, were of exceptionally high order. The President's address was delivered at an evening session to which the public were invited, and his comprehensive review of what medicine has done, and hopes still to do for the public welfare, proved of the greatest interest to the large audience present. The address in surgery was delivered by Dr. H. C. Marcy, of Boston, on the buried absorbable suture, its value in surgery, a subject with which Dr. Marcy's name has been connected for many years. Dr. G. G. Campbell of

Montreal, read the address in medicine, taking for his subject, some common errors in diagnosis. An interesting historical paper by Dr. D. A. Campbell of Halifax, one of the past presidents, traced the history of the society from its foundation, and proved conclusively that the present, instead of being the thirty-fifth was the fiftieth annual meeting, thus ranking the society as one of the oldest in the Dominion.

The social side of the meeting was made most enjoyable, by the many hospitalities extended to the visiting physicians by many of the prominent men of the town, and the last evening session was concluded by a smoking concert.

The John McKellar Memorial Hospital at Fort William has recently been opened. The cost of the building was $16,000; of this amount $7,000 was borrowed and $3,500 has been subscribed, leaving a balance of $5,000 yet to be raised.

The Royal Victoria Hospital makes the following report for June: Admitted during the month, 281; discharged during the month, 284; died during the month, 13; daily average, 206; highest number any one day, 217; ambulance calls, 61; outdoor consultations, $2,014; visitors to patients, Sunday, June 28, 403.

The Montreal General Hospital in June admitted to the wards 272 patients, and 252 were discharged; there were 22 deaths. The average daily sick in residence was 188; the largest number on any one day, 206. The ambulance calls for the month were 109. The outdoor consultations for the same period were 3,806.

The next annual meeting of the Academy of Ophthalmology and Oto-Laryngology, formerly the Western Ophthalmologic and Oto-Laryngologic Association, will take place in Denver; Wednesday, Thursday and Friday, August 24th, 25th, 26th, 1904. Dr. Edward Jackson, Denver, is president, and Dr. Derrick T. Vail, 4 W. 7th Street, Cincinatti, secretary.

The half yearly medical report of the Western Hospital was issued with commendable promptness, eight days after the closing of the term. In the in-door department there were treated 90 medical cases; 168 surgical, and 55 gynæcological, making a total of 313 cases.

In the out-door department, the total consultations given were 3,349.

The total number of consultations for the second quarter in 1902. was 1,621, while for 1903 it was 1,847.

The Board of Governors of McGill University has made the following appointments in the Faculty of Medicine:—Dr. J. G. McCarthy, to be assistant professor of anatomy; Dr. J. T. Halsey, to be assistant professor of pharmacology and therapeutics; Dr. R. A. Kerry, to be lecturer in pharmacology and therapeutics; Dr. S. Ridley Mackenzie, to be lecturer in clinical surgery; Dr. John McCrae, to be lecturer in pathology; Dr. D. A. Shirres, to be lecturer in neuro-pathology; Dr. D. D. McTaggart, to be lecturer in medico-legal pathology.

A deputation, representing the medical faculties of Toronto and Trinity University waited on the Ontario Government on the 15th July, on the subject of the federation of the universities. The deputation expressed themselves as favorable to the union of the two institutions, and asked that the Government assure the medical faculty of the endowment of chairs of preventive science, medical jurisprudence, sanitary science, anatomy, pathology and therapeutics. The Premier on behalf of the Government assured the deputation that the subject would have favourable consideration.

A final decision in the case of the town of Windsor against the estate of Godfrey Payzant has been rendered by the Supreme Court of Nova Scotia. The testator left $20,000 to the town to assist in building and maintaining a hospital on condition that the corporation should procure a like sum by a tax on the citizens or from private donations or otherwise, to be added to this bequest.

Apparently $6,000 had been raised in accordance with the terms, but in respect to the $14,000 which, under an act of the legislature of the province the Provincial Government had granted to the town to enable it to comply with the requirements, it was disputed that the contribution was within the terms of the will. The seven years are just expiring, and in the judge's opinion, the words of the bequest are broad enough to cover the amount procured from the Government.

The Medical Council of the Ontario College of Physicians and Surgeons met in Toronto on 7th July. The following officers were elected:—President, Dr. J. A. Robertson, Stratford; vice-president, Hon. Senator Sullivan, Kingston; treasurer, Dr. H. Wilberforce Atkins, Toronto; registrar, Dr. R. A. Pyne, Toronto; solicitor, Christopher Robinson, K.C., Toronto; prosecutor, Charles Rose, Toronto.

The question of matriculation was referred to a small select committee as the attempt made last year to raise the standard from the

present pass matriculation examination with chemistry and physics to the honor standing was objected to by the Education Department.

The prosecutor reported that he had investigated 71 cases. In fifty-three cases informations were laid against persons violating the medical laws; in 31 he secured convictions; fourteen cases were dismissed and six withdrawn; five persons were warned to cease practising. He recommended that the council ask the Legislature for a short amendment to the medical act, in order to protect the public from the persons who call themselves osteopaths, magnetic healers, electric healers, and others who did not flourish when the present medical act was passed.

Retrospect of Current Literature.

MEDICINE.

UNDER THE CHARGE OF JAMES STEWART, F. G. FINLEY AND H. A. LAFLEUR.

On the Influence of the Dwelling on the Development of Tuberculosis.

PROF. ROMBERG AND DR. HAEDICKE. "On the Influence of the Dwelling on the Development of Tuberculosis. *Deut. Arch. Klin. Med. Bd. 76, 309.*

The authors have taken advantage of the conditions in the small town of Marburg, where the great majority of the poorer classes of the population is treated in the policlinic, as a basis for the study of the origin and frequency of tuberculosis.

From the observations of Biggs, of New York, it is very generally accepted that pulmonary tuberculosis is chiefly promulgated by house infection. As the authors point out, however, Biggs's communication is the only important investigation carried out in this important subject.

According to Biggs, many houses in the poor quarters of New York, remain free from tuberculosis, whilst about half the total number of cases of tuberculosis came from less than 10 per cent. of houses. The writers' observations in Marburg are strongly confirmatory of Biggs's view that tuberculosis is chiefly a house infection; their arguments and figures, set out at considerable length, form convincing evidence of their views.

The Marburg enquiry extends over a period of eleven and a half years, houses were selected from which a considerable number of persons had been treated for various maladies at the policlinic. During the period referred to 116 houses, sheltered 1,693 people, of whom

1,431 received treatment at the clinics. Of these tuberculosis occurred in 262 individuals or in 18.3 per cent. of all classes treated.

In twenty houses during eleven and a half years there were no cases of it.

In a second group of twenty-four houses tuberculosis was rare, i.e., in the two groups together, the frequency of tuberculosis amongst those treated for all conditions was only 8.1 per cent.

In contrast to this a group of thirty-nine houses presented a frequency of 36.1 per cent., of cases of tuberculosis amongst those treated, and in some of these houses six or eight cases occurred.

In the poorer quarters of the town 59.2 per cent. of all cases of tuberculosis came from 33.6 per cent. of houses. The figures are much more striking when the tuberculous houses are selected for comparison. In 2.6 per cent. of these houses there live 34 per cent. of the total number of cases of tuberculosis in the town.

The writers go on to exclude other conditions as responsible for the extraordinary collection of tuberculosis in certain houses. Filth, overcrowding and closely built dwellings are not alone responsible, as the disease occurs in new houses, and in a district where the buildings are surrounded by fields. Although the disease does not necessarily occur in dirty houses, it was found that it did not arise in well-kept and cleanly buildings,

That the disease is most prevalent amongst the poorest classes is proved by the Marburg observations.

The average frequency of the disease in the town is 1.1 per cent.; amongst the poorest fifth of the population the percentage of cases is 4.7, while amongst the better situated four-fifths it is only .2 per cent.

The writers clearly show that the struggle against tuberculosis must be waged in the dwellings of the poor, and that the greatest danger exists in a dirty house with a careless, expectorating tubercular patient.

SURGERY.

UNDER THE CHARGE OF GEORGE E. ARMSTRONG.

Comparative Value of Dry and Moist Dressing.

Dr. Carl Gontermann. "Experiments Concerning the Increase or Decrease of Microorganisms in Accidental Wounds under Dry Aseptic and Moist Antiseptic Dressings. *Archiv. f. Klin. Chir. Bd. 70. Heft. 2, 1903.*

This investigation, carried out in the Surgical Polyclinic, of von

Bergmann, in Berlin, has for its object the comparison of dry and moist methods in wound-dressings. Daily cultures were taken from wounds, sown in gelatine, plated, and the colonies counted one day later. The dressings used were (1) dry aseptic gauze; (2) iodoform gauze; (3) moist sublimate gauze 1—2,000; (4). moist carbolic 3%. The organism found was in most cases the staphylococcus albus; occasionally the aureus.

The work seems to have been thoroughly and reliably done; and so far as it goes (51 cases divided between the four methods) justifies the author's conclusions, which are as follows:—

1. No continued bactericidal after-effect of antiseptics with which wounds have been washed, can be shown.

2. The number of micro-organisms in non-suppurating accidental wounds is increased to a greater degree by the use of impervious moist antiseptic dressings than by that of dry dressings.

3. Iodoform gauze is to be preferred in the dressing of accidental wounds, because, besides its important properties of drainage and hæmostasis, it possesses a decided inhibitive action on bacteria.

4. Moist dressings readily induce eczema and hair-follicle suppuration in the vicinity of the wound by reason of the maceration of the skin.

5. Moist dressings form no certain preventative of suppuration in accidental wounds.

6. In suppurating wounds dry dressings bring about a more rapid disappearance of bacteria than do moist ones.

7. Many accidental wounds heal without the least clinical sign of inflammation in spite of the presence of large numbers of bacteria.

Potassium Permanganate in the Treatment of Lupus.

J. Hall-Edwards, Surgeon-Radiographer to the General Hospital, Birmingham. "Potassium Permanganate in the Treatment of Lupus." *British Medical Journal*, June 27, 1903.

The author calls attention to the fact that "in many cases of lupus treated by the X-rays, the centres of the patches rapidly get well, whilst the edges continue to spread slowly." In these cases he claims to have greatly improved the results by combining the local use of permanganate of potash with the X-rays. Several cases treated with the permanganate alone yielded, however, surprisingly good results also.

His method is as follows:—A saturated solution of the salt is used (1 drachm in 1 oz. aq.-dest). In non-ulcerative cases, the patch is washed, dried with alcohol, and then the permanganate solution is brushed on.

In cases covered with crusts, the part is cleansed as well as possible without removing these, and the crusts themselves are saturated with the solution. The applications are repeated every day or every other day till relief is obtained. Healing takes place under a scab; and the scar is said to be extremely good.

The Surgical Treatment of Smallpox.

LAUREL B. SANDALL, M.D. "The Surgical Treatment of Smallpox." *The Physician and Surgeon, March, 1903.*

The writer, for three years surgeon in the American army in the Philippines, has had a very extensive experience with smallpox, which is more or less epidemic in those islands. Dismayed by the appalling mortality, among both natives and Americans, and believing the main cause of death to be absorption from the pustules, he resolved to adopt elementary surgical principles in treatment; and, in this idea, proceeded with the help of the ordinary hospital attendants, to evacuate every vesicle or pustule and disinfect its base with swabs dipped in carbolic 1-40 or sublimate 1-1000. There is no pain, and seldom any bleeding in the operation. In addition an antiseptic bath is given twice a day. Statistics do not appear in the article, but the claim is made that the disease is shortened, lives saved, and pitting largely prevented.

OBSTETRICS.

UNDER THE CHARGE OF J. C. CAMERON AND D. J. EVANS.

Twin-Pregnancy—Statistics and Diagnosis.

SEEGERT. "Twin Pregnancy—Statistics and Diagnosis." *Zeitschrift f. Geb. und Gyn. Bd. XLIX., s. 206.*

From January 1st, 1890, to January 31st, 1902, in Olshausen's Frauen-Klinik, at Berlin, out of 15,997 deliveries, there were 233 of twins, *i.e.*, one out of every 68.6 In 33, delivery occurred before eight months. In 101, the diagnosis was made out positively before labor, and in 94, not before the birth of the first child. Twin births were more common in primiparae: 116 I-parae, 51 II-parae, 22 IV-parae, 5 V-parae, etc. The largest children were those of a XV-para, they weighed respectively 4,220 gram. (9¼ lbs.), and 3,900 gram. (8½ lbs.). In 46 per cent., the head presented in both children; in 8 per cent. the breech in both; in 34 per cent. one by the head and the other by the breech; in 8 per cent., one by the head and the other transversely; in 4 per cent., one by the breech and the other transversely. In 67.3 per cent., both children were of the same sex; in 32.7 per cent., of different sex. Of 191 in which the ovum development was accurately

determined, 24.6 per cent. were from one ovum, and 75.4 per cent. from two ova. Operation was required in 41.6 per cent, as follows:—Forceps, 51 times; external cephalic version, 5; podalic version alone, 4; version and extraction, 23; extraction alone, 35; delivery of arms alone, 6. The complications were p.p. hæmorrhage after the birth of first twin, 9 times; hæmorrhage from atony after the birth of second twin, 17 times; in all, hæmorrhage, 26 times (11.16 per cent.). Eclampsia occurred in 30 cases (12.88 per cent.).

Diagnosis.—In the 101 cases in which a certain diagnosis was made before labor, it was based upon:—

1. At least 3 large fœtal parts, 28 cases.
2. 2-3 large fœtal parts, and double heartbeat, 27 cases.
3. Double heartbeat (of different rate), 27 cases.
4. 2 large fœtal parts, of same kind, 18 cases; (*a*) 2 backs in 7 cases; (*b*) 2 heads in 11 cases.
5. 2 large fœtal parts in the fundus, 3 cases.
6. Abnormally large number of small fœtal parts, 4 cases.
7. Cystic feel of uterus after escape of liquor amnii, 3 cases.
8. Heart sounds, with loose movable cranial bones, 1 case.
9. Internally, 2 amniotic sacs, one containing a head, the other a foot, 1 case.
10. On the same side as the small parts, a large round part which could be ballotted, 1 case.

For the further establishment of the diagnosis there were employed:—

11. Ahlfeld's measurement. A distance of over 30 cm. between the presenting large part of the fœtus and that which lay furthest off in the fundus.
12. Fluctuation in the fundus. According to Keilmann fluctuation can be felt in the unruptured amniotic sac at the os uteri in hydramnios, but it is absent in twin pregnancy.
13. Prolapse of funis, one amniotic sac being unruptured.

From the consideration of the above table, it is evident what a large number of signs are available for diagnosis of twin pregnancies.

Hyperemesis Gravidarum.

Behm. "Hyperemesis Gravidarum." *Archiv. f. Gynaekologie. Bd. LXIX., s. 410.*

In a severe case of puerperal pyæmia from thrombophlebitis, Behm obtained excellent results from the use of rectal injections of salt solution (0.6 per cent.) as recommended by Wernitz, of Odessa. He gave 4 to 5 litres daily, and after eleven days treatment the temperature was normal and the patient was passing 3-4 litres of urine in the twenty-four hours. It was evident that the salt solution power-

fully excited the action of the bowels, kidneys and sweat-glands, thereby helping the elimination of toxic matters. Encouraged by his success, Behm determined to use the same method in measles, scarlatina, diphtheria, etc., as well as in uræmia and eclampsia. Shortly afterwards he met with a bad case of vomiting in a strong, well-built primipara, 19 years of age. Vomiting began in the second week of pregnancy. By the end of the third month she could retain no nourishment, and vomited night and day. The usual methods of treatment having given no relief, the salt injections were tried. Every morning the bowel was washed out with an enema, and then at intervals of two hours ½-⅓ litre of warm salt solution (82°-86° F.) was injected per rectum. The good effect was immediate, and in six days the vomiting had ceased entirely and the patient was able to eat ordinary food. The vomiting returned after the injections were stopped, but a further treatment of fourteen days completed the cure. Six cases of vomiting have been treated according to this method, all successfully, five patients being primiparæ. In two of Behm's cases the induction of labor had been advised by consultants. In the first case, the pulse was 120, and the patient had lost 25 lbs. in weight in five weeks. In the second case, 10 lbs. had been lost in three weeks. After discussing the various theories which have been proposed in explanation of pernicious vomiting, the author defines hyperemesis gravidarum as "an intoxication of the blood of pregnant women, proceeding from the periphery of the ovum, most probably of a syncytial nature." The treatment he lays down is rest in bed and tablespoonful does of iced milk. If this fails, he stops all nourishment by the mouth, clears out the bowel in the morning with an enema and gives 3-5 litres of salt solution in the course of every twenty-four hours. If the bowel becomes irritable and rejects the solution, he adds Tinct. opii gtt xv-xx per litre. When no nourishment is retained, milk may be added to the salt solution, in the proportion of half and half. A salt solution of 0.65 per cent. seems to be more easily absorbed than the stronger 0.85 per cent. solution which Ehrlich states to be normal. If the bowel becomes too irritable to bear the injections, he gives the salt solution subcutaneously, and washes out the stomach with a weak solution of sod. bicarb. By these measures he hopes that in the future hyperemesis gravidarum will be controlled without resorting to the arrest of gestation. He agrees with Pinard in laying down as the formal indication for operative interference, a continuous pulse rate of over 100 along with marked loss of body weight. In the matter of technique he insists that the physician should show the nurse how the injections are to be given. An elastic rectal tube is used, the temperature of

the fluid is 82°-86° F., the injection is given without force, the irrigator being held not higher than three feet above the level of the bed. If any straining is felt, the irrigator is lowered until the peristalsis of the bowel has quieted down. If any fœcal matter returns with the salt solution into the irrigator, fresh solution is used. In the primary cleansing it may take an hour to clear out the rectum and colon, and it may need another hour before the peristalsis is quieted and the bowel is in condition for the first injection of salt solution. Sometimes not more than ⅓-½ litre can be given at once; after a couple of hours another can be given; 4-6 litres should be given in the course of twenty-four hours. Considerable patience, perseverance and dexterity are necessary to ensure good results, but so far the author has not failed to cure the vomiting.

Excessive Size of Fœtus.

"Excessive Size of Fœtus."—*Bulletin de la Société d'Obstétrique de Paris, 1903, p. 235.*

At a recent session of the Paris Obsterical Society, several cases of unusual fœtal development were presented. *Dr. Delcamp* reported the delivery of a child 61½ cm. long, weighing 9,900 grammes (21 lbs.—13⅓ oz.). The mother aet 42, x-gravida, was a robust peasant woman Her nine previous confinements had been normal, the children being a little above the average size. In the tenth labor, the head was extracted with difficulty by means of forceps, and the delivery of the shoulders gave considerable trouble. The measurements of the head were as folows:—

Diameters—O.M.	17 cm.	Circumferences—	
O.F.	14.8 cm.	O.M.	46 cm.
S.O.B.	12 cm.	S.O.B.	37 cm.
B.P.	13 cm.	S.O.F.	40 cm.
B.T.	10.5 cm.		

The diameters of the trunk were:—

Bisacromical	19 cm.
Bitrochanteric	17 cm.
Bisiliac	16 cm.

The child was a female and perished during delivery. The placenta was 3½ cm. thick in the middle, and weighed 750 grammes (1 lb.-10 oz.)

M. Schwab, reported the second case. The mother was a II-gravida, and had borne an average sized child in her first confinement. In the second pregnancy, everything went normally till about the 8th month, when the abdomen began to enlarge rapidly; considerable hydramnios was made out and active fœtal movements ceased 8 days

before confinement. A macerated fœtus was delivered with great difficulty by means of forceps.

The child was 57 cm. long, and weighed 10,260 grammes (22 lbs.-10 oz. nearly). Only three measurements were taken:—

B.P. ... ...10.5 cm.
Bisacromial .. ..20. cm.
Bitrochanteric .. ..14. cm.

The most striking feature was the enormous development of the thorax.

No reason was assigned in either case for the unusual size of the child.

Histological Cause of Adherence of Placenta.

Edhem.—"Histological Cause of Adherence of Placenta."—*Bulletin de la Société d'Obstétrique de Paris, 1903, p. 251.*

Until quite recently, the study of placental adhesion has been chiefly from the clinical and anatomico-pathological standpoint, and for the various theories which have been proposed regarding its causation, histological proof has been wanting hitherto. Edhem's investigations have been made with the view of furnishing this proof.

In 1875, Langhans stated that he found the decidual cells to be small and fusiform in adherent placentæ, and that there is an increase of intercellular tissue as well as a defective development of the glandular layer. He attributed these changes to an inflammatory process which ended in the substitution of a compact tissue for the normal spongy layer in which utero-placental separation usually takes place. Subsequently Matthews Duncan, Leiss, Leopold, Neumann and more recently Hense published observations which throw more or less light upon the subject. Hense whose work is the best thought out attributed placental adherence to a defective development of the uterine mucosa, and secondarily to atrophy of the decidua. The results of Edhem's observations may be summarized as follows:—

1. Placental adhesions are due to an alteration in the uterine mucosa, and tend to recur in subsequent confinements.

2. They are not inflammatory in nature.

3. Histologically they show a hyperplasia of the interstitial tissue of the decidua (especially the Serotina), which ends in the disappearance of the spongy layer where uteroplacental separation normally takes place, either by the substitution of a layer of dense compact tissue, or by its suppression in places permitting immediate contact between the villosities and the uterine muscle.

If these conclusions are confirmed by subsequent observations, we

will have to dismiss the "inflammation" theory altogether, and accept "insufficiency of the uterine mucosa" as the true etiological factor in placental adhesion. On such a supposition it becomes easy to understand how adhesion is apt to recur in subsequent pregnancies, for insufficiency of the uterine mucosa remains constant. As a matter of fact, Hense found in 168 cases of manual separation of the placenta, that a repetition of the complication occurred in 43.55 per cent.

It is also worthy of note in these cases, that puerperal complications are usually absent. If we admit the non-inflammatory nature of the adhesions, it is evident that if the patient does not die of hæmorrhage, and if the uterus is thoroughly curetted and cleaned out, the patient will be almost sure to recover without further complication, for when once the placenta is removed, the uterus is left in the normal post-partum condition.

The Resistance to Infection and Intoxication in Pregnancy and the Puerperium.

Bossi.—"The Resistance to Infection and Intoxication in Pregnancy and the Puerperium."—*Archiv. f. Gynäkologie. Bd. LXVIII., s. 310.*

For the purpose of determining experimentally whether animals in the pregnant and puerperal state are infected more easily and more severely than when not pregnant, Professor Bossi, of Genoa, experimented upon thirty rabbits and twenty-nine guinea pigs. Inoculations were made with pure cultures of B. Coli, proteus mirabilis, B. diphtheriæ, B. tuberculosis, pyocyaneus, pneumococcus, streptococcus pyogenes, staphylococcus pyogenes, staphylococcus pyogenes aureus, and with mixed cultures of streptococcus and staphylococcus, and of B. diphtheriæ and streptococcus. The mixed cultures caused a larger number of acute diseases in both pregnant and non-pregnant animals. With pure as well as mixed cultures, the mortality was greater in the pregnant than in the non-pregnant; the farther advanced the pregnancy, the more pronounced was the difference. The temperature was on the average 1.5° C. higher in the pregnant animals, and abortion was of very frequent occurrence. In a proportionately large number of cases, bacteria were found in the placenta and in the blood of the fœtus. Diphtheria was the only exception, the pregnant animals showing greater resistance to the bacillus and its toxine than the non-pregnant. For tuberculin the result was uncertain. In the action of experimental infection, no special difference was noticed between puerperal and non-puerperal animals. The passage of micro-organisms into the milk seems to be established. These experiments of Bossi have an

important bearing upon the question of the advisability of interrupting pregnancy in women suffering from infectious disease. With the single exception of diphtheria, pregnancy seems to increase the severity of infectious diseases and to increase their mortality; and the further advanced the pregnancy, the more disastrous seem to be the results. If, then, pregnancy injuriously affects the course of infectious diseases in woman as it has been shown to do in rabbits and guinea-pigs, it will become a clear indication to interrupt pregnancy artificially in such cases, and to do it as early as possible.

Another point of clinical interest is, that there seems to be a great probability of the fœtus being infected through the placenta as well as the possibility of infection subsequently by means of the breast-milk. Hitherto, in considering the question of the induction of premature labor in a woman suffering from some acute infectious disease, we have been in the habit of regarding the fœtus as being healthy, so that the artificial interruption of pregnancy probably would involve the destruction of a healthy child. If, however, we are to regard the fœtus as being in all probability already infected, and its chances of living rather poor, we may be more ready to advise the induction of labor in the interests of both mother and child. No doubt further experiments will be needed before we can lay down precise rules for the management of such anxious cases, yet Bossi's observations are valuable and suggestive.

Delivery of the After-coming Head.

"Delivery of the After-Coming Head."—*Zeitschrift f. Geb. und Gyn. Bd. XLIX., s. 120.*

An interesting discussion took place recently in the Berlin Obstetrical Society upon this important subject. *Steffeck* read a paper in which he described a method which he considers superior to the usual Smellie-Veit and Martin methods, claiming that by it there is considerable saving of time and consequently a diminished risk of asphyxia. After the delivery of the arms he does not pass the hand into the vagina or the finger into the mouth of the child, as he considers that premature breathing may be induced thereby. He depends wholly upon the use of both hands externally to press the head down into the pelvis, no matter how it may be situated. After the delivery of the shoulders, he places the patient in the Walcher position, and, standing between the patient's thighs, he presses the head downwards and backwards with both hands, and as soon as the head has fairly entered the pelvis he delivers by the Smellie-Veit method. He thus obtains the maximum size of the inlet and much greater expressing force than

if he used one hand only externally. When the chin is anterior and stays over the symphysis, he first pushes it backwards clear of the symphysis and then delivers as above described. After decapitation, he says that expression of the head is alone sufficient for delivery.

Olshausen prefers the older methods, but insists that the essential point is to pass one finger only into the child's mouth, and not two. He prefers the middle finger, which is longer and passes easily back to the base of the tongue; pressure by means of one finger carried well back has more effect upon the base of the skull and brings down the chin. When this has been accomplished, traction brings the head down into the pelvis. When an assistant is available, he thinks it better to have him make the external pressure with both hands, while the operator manipulates the chin. The assistant should make pressure with the flat of both hands and not with the fists, and thus considerable force may be used without injuring the uterus.

Strassmann raised the question whether it is better to grasp the head externally and make downward pressure upon it alone, or to seize the fundus and press down the uterus and placenta as well as the head. It is better but more difficult to grasp the head alone, and he has succeeded sometimes by seizing the fundus when he failed in the other manæuvre. When the chin lies forward over the symphysis, it should always be pushed over to the side or backwards before downward pressure is made.

Henkel does not consider it necessary to have the chin always backwards, but at least it should be diagonal before pressure is made upon the head.

Schülein considered it of the utmost importance to have the head in the oblique diameter of the pelvis before external pressure is made with both hands. He tries to press the occiput down deeper, so that extraction may be more easy.

J. C. C.

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THROMBOSIS OF THE FEMORAL VEINS FOLLOWING ASEPTIC LAPARATOMY.

BY

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It is my purpose to report the following case, not on account of any peculiarities associated with the diagnosis or treatment, but entirely because of an unexpected and unpleasant complication, occurring after convalescence had become well established.

Mrs. V., æt. 35, consulted me in November, 1902, regarding a double hernia.

The History that she gave indicated that the rupture on the left side had been present for twelve years, during which time she had worn a truss, which had only imperfectly retained the protrusion, especially during heavy work. On the right side the hernia had only been present a few weeks, was gradually becoming larger, and was the seat of considerable pain.

On examination a condition of bilateral oblique inguinal hernia was found, the mass descending easily on both sides during straining efforts, and being as easily returned.

Excepting this condition the patient was in perfect health, there was no discoverable cardiac, renal or pulmonary lesion, no anæmia, nor were there any varicosities of the superficial veins of the lower extremities. Operation was advised, but owing to extraneous causes was not carried out until the third week of January in the present year.

At that time Bassini's operation with McEwen's treatment of the sac was done on both sides under one etherization. The round ligaments were found large, and inseparably blended with the sac wall. They were accordingly dissected from their pubic attachments, and puckered up with the sac.

Contrary to my expectations the operation on the right side proved much the more difficult, the sac being more adherent to surrounding structures, and a small part being divided off by a septum to form a small hydrocele with insignificant fluid contents. For these reasons

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there was much more handling of the tissues, and more extravasation of blood on the right side than on the left, the time occupied being quite twice as long.

The whole operation was carried out under the strictest aseptic technique, including the use of rubber gloves. A flat table was used and there was neither Trendelenburg position, nor flexion of the knees or hips.

A moderately firm double spica bandage was applied, but as this caused some little irritation it was replaced after the first day by a many-tailed bandage firmly pinned across the hips, and this owing to its tendency to slip was changed for adhesive strips.

Early convalescence was entirely uneventful, and the temperature never went above 100F., nor the pulse above 90; the wounds were not dressed until the tenth day when the stitches were removed, primary union having occurred throughout on both sides in the most satisfactory manner. I may be pardoned for emphasizing the fact that there was absolutely no redness, induration or tenderness around either of the wounds. On the next day some slight pain was complained of in the right groin but it disappeared without treatment.

On the twelfth and thirteenth days considerable sharp shooting pain was complained of in the left groin, popliteal space and calf of leg. On the fourteenth day a hard indurated tender cord could be made out occupying the position of the upper end of the long saphenous vein. A diagnosis of venous thrombosis was made, the leg elevated, and moist heat applied to assist in the establishment of the collateral circulation. Up to this time there had been absolutely no fever; on this day, however, the temperature rose to 99 2-5F., and on the next to 101 deg., at which height it was maintained for nearly a week. The pulse rate was increased in proportion but was not elevated before the temperature as Singer's (1) investigations would tend to show occur in phlegmasia alba dolens. The condition ran a more or less benign course, the temperature becoming normal on the twenty-third day, but considerable pain and stiffness in the leg persisted for some weeks longer. During the height of the process there was considerable œdema in Scarpa's triangle, but at no time was there any at the ankle.

The condition was then in short an extensive venous thrombosis involving the left saphenous and femoral veins, following two weeks after an aseptic operation, with typically aseptic wound healing. Moreover it occurred on the left side, where the less extensive operation had been done, where there was less handling of the parts and less hæmorrhage, but where a truss had been more or less constantly worn for twelve years.

It is not my intention to go into an extensive discussion of the various theories to explain venous thrombosis, which have been advanced from time to time, as for instance by Hunter, Virchow, and Brucke, but on looking into the literature of the subject I find that there are a few articles dealing specifically with this special condition, such as those of Schenck (2), Willy Meyer (3), Coe (4), and Van der Veer (5), in English; and of Lennander (6), of Upsala, Strauch (7), of Moscow, Wyder (8), and Leopold and Mahler (9), in German.

All of these authors consider more or less briefly the question of the special etiology of this condition, aside from the question of the etiology of thrombosis in general.

Infection, mechanical obstruction to the circulation, as by tight bandages, loaded bowels, flexed thighs, traumatism during operation, as by retractors, causing the formation of more or less extensive hæmatomata, are among the commonest causes on which special stress is laid.

Strauch after considering his cases remarks:—"It appears therefore that the specific working of the ether, plus the high pelvis position has brought about this unpleasant complication."

Lennander believes that the possibility of compression of the respective veins by the dressing, as also the possible coagulation of blood in the veins of the lower extremity as the result of constipation, should be avoided. He further considers that the condition is partly at least due to mechanical obstruction of the circulation, and advises elevation of the foot on the bed after operation, and maintenance so during the whole time of convalescence, as a preventive measure.

The majority of the writers on the subject consider that infection is the most probable cause, though as Meyer puts it; "the infection need not start from the operative field, but may originate elsewhere, especially in the intestinal tract." Schenck concludes that "the facts that they have not followed pus cases, and that the condition occurs occasionally after operations on the appendix, gall-bladder, or right kidney, cases in short where the site of operation is more or less removed from the site of the thrombosis, are points difficult to explain under the theory of infection." This criticism may be offered of Schenck's conclusion—that the very cases he cites as illustrative of the improbability of infective origin, are themselves often infective. Thus in both Willy Meyer's appendix cases more or less acute peritoneal inflammation was present, and Meyer consequently agrees with those who consider infection to be a causative factor of the complication under discussion, and he points out the possibility that a few bacteria coli, or staphylococci

may have lain dormant in adhesions, and been stirred into life by the manipulatory efforts connected with the operation.

In speaking on this point it is interesting to note that at a discussion recently held before the Paris Society of Surgery (10), M. Jalaquier, and M. Brun both reported three cases of left femoral thrombosis occurring in the course of appendicitis, and connected, not with the operation itself, but with the condition calling for operation, since in two cases the only operative measures used were the evacuation of abscesses. The editor of the *New York Medical Journal* says (11) in this connection, "left femoral thrombosis may yet come to be regarded as of diagnostic significance in obscure cases in which only the possibility of appendicular inflammation can be affirmed."

In a large percentage, however, of the cases to which I refer, neither wound infection nor inflammatory disturbance in other parts of the body, enters into the subject, since nearly all the wounds follow a typically aseptic course, as in the case reported, and in many at least, there is no evidence of infective conditions elsewhere. In the above case also the fact that the pain and induration caused the diagnosis to be made, before there was any distinct elevation of temperature shows that an infective origin is improbable. The bowels had been well cleared out and were maintained so, after the operation, so that distension of the sigmoid with fæcal mater and absorption therefrom is not probable as a cause. Again the fact that out of Schenck's forty-eight cases only four occurred before the tenth day, would seem to cast doubt on any infective nature, since we should expect this to manifest itself earlier.

Moreover, that the elevated temperature is not in itself evidence of an infective origin is pointed out by Meyer in these words: "in the case of a thrombosis, changes in the blood within the thrombosed vessel, as well as in the tissues immediately surrounding it, may have set in, and from these areas poisonous albuminoid substances may be absorbed by the system, and thus produce rise of temperature and increased action of the heart."

In considering Schenck's case, one is struck, as he was, by the large percentage following operations for the removal of tumours, especially since, as he says, these are not the cases in which there is the most traumatism, the most loss of blood, or the greatest chance of infection. Twenty-eight of his cases, or fifty-eight per cent. followed the removal of large tumours, myomata or ovarian cystomata, while in addition, five followed radical operation for carcinoma uteri, and one, including a hysterectomy for pelvic inflammatory disease, a total of thirty-four cases, where it is possible to conceive that there was very distinct alteration in the pressure relations before and after the operation. Of the total this

represents seventy-one per cent. Feeling that this change of pressure might have some causative influence in at least a share of the cases, I have so far as possible looked up the reports with the following results:—

Author.	No. of Cases.	Condition.	Side.	Result.
Schenck	4	Perineal repair.		Recovery.
	19	Hystero-myomectomy.		"
	9	Ovarian cystomata.		"
	5	Hysterectomy for carcinoma.		"
	3	Suspension.		"
	4	Suspension with repair.		"
	1	Hysterectomy for inflammation.		"
	3	Miscellaneous.		"
Lennander	5	Appendectomy.		
Willy Meyer	2	Appendectomy.	Left.	"
Strauch.....	1	Hystero-myomectomy.	"	
	1	Right ovarian cyst.	"	
	1	Large tumour of left ovary.	"	
Van der Veer....	1	Angioma of lobus Spigelii.	"	
	1	Large bilateral ovarian tumours.	"	
	1	Large fibroid, filling pelvis.	"	
	1	Recurrent Appendicitis.	"	
Coe	1	Perineal operation with removal of both adnexa.		
	1	L. oophorectomy, appendectomy.		
	1	Cyst of l. ovary, appendectomy.		
	1	Left dermoid, filling abdomen.		
	1	Cyst of ovaries.		
	1	Operation for inversio uteri.		
	1	Trachellorrhaphy.		

Sixtynine cases, divided as follows:—Appendectomy, eight; perineal, five, while for the removal of abdominal tumours, whether benign, malignant or inflammatory there were forty-four or sixty-four per cent.

The reports of Wyder and of Mahler and Leopold were also consulted, but they are concerned rather with the occurrence of post operative pulmonary embolism, arising both from crural and pelvic thromboses, most frequently the latter.

In this connection I must recall the fact that in the above reported case a truss had been worn for many years, and was only permanently removed at the time of the operation. Again the bandages owing to some degree of restlessness on the part of the patient, were only lightly held in place and exercised no pressure over the wound. Adding then this case to the above there are seventy cases, forty-five of which or sixty-five per cent. followed conditions of decreased pressure.

If, however, we subtract from these seventy cases those in which, as for instance the appendix cases, there was undoubted infection in other parts of the body, we have left sixty-two cases of which forty-five or seventy-three per cent. were dependant on operations which brought about conditions of lessened local tension.

All of the writers on this subject have emphasized the late occurrence of this complication. Of Schenck's cases twenty-five occurred between the twelfth and the sixteenth day, and this perhaps may be taken as the average period.

Mahler and Leopold in their article call attention to the fact that when a large neoplasm is removed the intra-abdominal pressure sinks and the pelvic veins become dilated. This condition cannot but predispose to the formation of thrombi in these veins since all the surroundings are favorable, injured vessel walls from trauma, and slowed current from the dilatation. Hence we may suppose that thrombi form, and gradually spread from smaller to larger vessels, until either the internal or the external iliac vein is involved. It would of course take some considerable time for this condition of slowly spreading thrombosis to reach the larger vessels hence the usual late occurrence of the complication.

Another hypothesis which might be advanced would be that the decreased pressure allowed the exudation of large amounts of serum and blood into the tissues, which former coagulated and finally became organized, thus producing a secondary or late pressure on the veins.

Regarding the treatment of this state when it arises, nothing new can be offered. Elevation of the limb, and moist heat to favour the formation of the necessary collateral circulation seem best to meet the indication. Lennander's suggestion as to prophylaxis by elevation of the foot of the bed would seem difficult to carry out. Moreover it would assuredly make nine hundred and ninety-nine patients uncomfortable in order that one might have a little better chance of escaping this complication. Again Van Buren Knott (12) reports 326 cases of laparotomy treated post-operatively by elevation of the head of the bed (Fowler's position) without any increased tendency to phlebitis. If, however, the above quoted facts are of any value, and if deductions can be safely drawn therefrom, it would seem advisable to support the abdomen rather more definitely than is usually done, especially after the removal of large tumours. After hernia operations it would appear to be well to exercise a certain degree of direct pressure over the wound area, probably most comfortably carried out by a well applied spica of crinoline.

From a consideration of the above statements it is probable that the following conclusions may be safely drawn:—

(1). No one etiological factor is alone responsible for the occurrence of this complication.

(2) The role of infection in otherwise non-infective cases, does not appear to be an important one.

(3) Conditions of sudden decrease of pressure dependant on the operation, probably have a causative influence.

(4) Treatment should be prophylactic, as by avoidance of unnecessary traumatism, of hæmorrhage, or of suddenly decreased tension, as by having the wound area well supported by firmly applied dressings.

(5) So far as I am aware there has been no mortality in the reported cases, but the occuranec of pulmonary embolism in a certain proportion warns us that this termination is not an impossible one.

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PYO-NEPHROSIS OF LEFT KIDNEY—NEPHROTOMY; RENAL CALCULUS OF RIGHT KIDNEY—NEPHRO-LITHOTOMY.

BY

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Mrs. D., age 34, married, was admitted to the Victoria General Hospital on February 18th, suffering from a large tumor in the left hypochondriac and left lumbar regions. The following history was elicited from her: Born in England, but lived in Nova Scotia for the past twenty-two years; was married fourteen years ago, has five children living and one dead, until after the birth of her last child patient generally enjoyed good health, she had been threatened with abortion the first four months of her three last pregnancies and she has had a good deal of difficulty with her three last confinements. Four months before her last child was born she suffered greatly from irritability of the bladder, and noticed blood in the urine, but had no pain in avoiding it, nor afterwards. The urine was very foul and contained a whitish deposit and ropy mucous. Her physician ordered her to bed, and put

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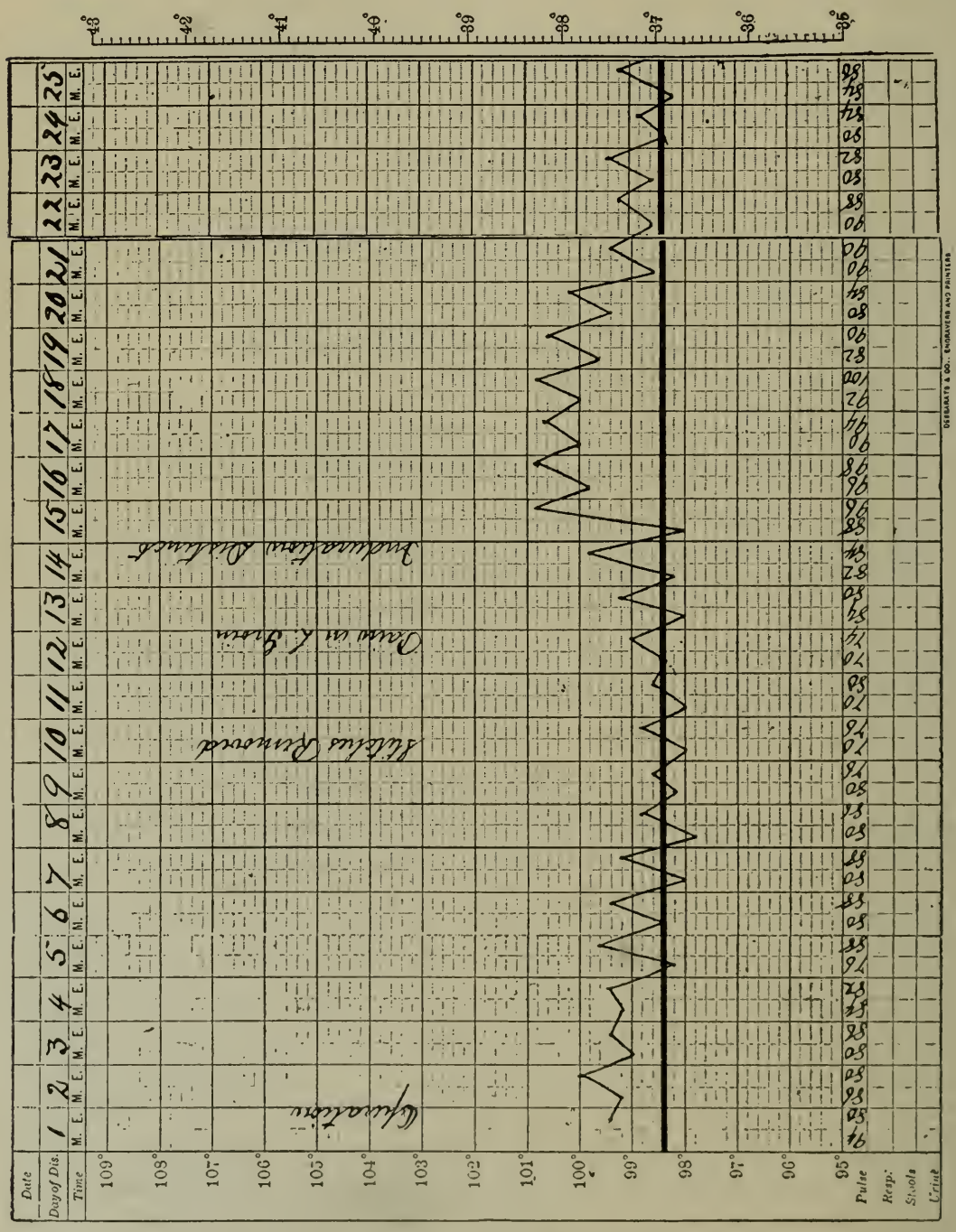
her on appropriate treatment, but her condition remained unchanged, till after the birth of her child when the urine became normal in colour, but the sediment remained. Since the birth of her child on the 5th November, she has had pelvic pains, chiefly in the left iliac region, and



a feeling of weight, also a dragging sensation in the lower part of the stomach. Exercise aggravated these symptoms. About three weeks before being admitted to the hospital, she experienced a chilly feeling with flashes of heat, and anorexia, she vomited occasionally, she also

suffered from back-ache which was worse on walking about, and had an occasional attack of indigestion and flatulence after food.

Patient looked healthy when she was admitted to the hospital. Her appetite was poor, she had no pain on micturition, but she had at times a constant desire to make water, and had had to get up often at night for that purpose. Bowels were fairly regular, the circulatory and respiratory systems were normal. Patient had a large tumour in the left hypochondriac and left lumbar regions, and it extended from the lower ribs down to a little below the umbilicus. It was as large as a child's head, and extended a little to the right of the mesial line of the abdomen. The tumour caused a distinct prominence. Percussion elicited a dull note, but there was no evidence of fluctuation. The dull note remained unchanged with the changed positions of the patient. The mass was painful and tender on percussion and practically immovable, and the muscles over it were quite rigid. She was unable to lie comfortably on the healthy side.

We kept her under observation for ten days, getting her ready for operation during which time the urine was examined on various occasions. The quantity of urine voided on an average every twenty-four hours was about 40 ounces. It contained an enormous amount of pus; fully half of it was pus.

The following is the result of an analysis made of the urine on two different dates:—

February 19th, urine foul-smelling and turbid; colour straw; reaction, alkaline, Sp. Gr. 1015; albumen present; heavy whitish deposit abundant: crystals, calcium oxalate; pus abundant; blood cells and epithelial also present; no casts.

February 23, colour opaque yellow; odor foul; reaction, faintly alkaline; Sp. Gr. 1022; large amount of albumen present after two filtrations; about half the amount of urine voided in twenty-four hours was a thick pus coloured deposit; pus cells present in abundance; no casts.

February 24, patient is passing an enormous quantity of pus with the urine.

February 26. Amount of pus in urine remains unchanged, pain and tenderness on left side still.

Operated on the 28th of February and removed from the left kidney about 1½ pints of very foul smelling pus. Chloroform was the anæsthetic used. The usual incision for a lumbar nephrotomy was made. It began at the outer edge of the erector spinæ, 2½ inches from the spinous processes, and extended outward, downward and forward parallel with and half an inch below the 12th rib. On dividing the muscles and fasciæ, and making my way through the circumrenal fatty tissue, I

came down upon a well defined cystic tumour. There was little or no evidence present of perinephritic inflammation, old, or recent.

The kidney which was converted into a unilocular cyst was cut into, and its contents evacuated, and the abscess cavity was well irrigated with warm boracic solution. The secreting substance of the kidney was apparently all gone, no trace of the origin of the ureter was found. In view of the conditions present, I did not consider it advisable to make any prolonged search for it. I then inserted a good sized rubber drainage tube into the kidney and brought the anterior and posterior ends of the incision together with a few sutures, and dressed the wound, antiseptically; bleeding was very slight. Patient stood the operation well. The further progress of the case was uneventful till the 17th March, when the patient complained of pain and tenderness in the right lumbar region at MacBurney's point. On examination a tumour was felt here, but on account of the tenderness of the mass and the rigidity of the abdominal muscles, it could not be mapped out.

From the 28th of February till the 17th of March, her temperature ranged between normal and 99.5.F. and her pulse between 80 and 100 and good. The quantity of urine voided on the following dates was: On 28th February, 10 oz.; on March 1st, 33 oz., and on the 2nd of March, 49 oz. From this date until the 27th March, the quantity voided daily, amounted to 32 or 33 oz. on an average. The amount of pus present became gradually less, but never disappeared, altogether.

The following records were made by the house surgeon: March 19th, patient doing well, pain and tenderness in *right* lumbar region persist. It looks as if there was another abscess on this side.

March 26. Discharge from wound is now clear and has a urinous odor. Urine about the same as for some time past.

March 27. Tumour in the region of the right kidney, can be felt distinctly, but the tenderness is so great that it is impossible to make out anything definite about it without an anæsthetic. Since the operation the quantity of pus diminished from ½ to 1-12 the bulk of urine voided.

Performed nephro-lithotomy on the 28th March, four weeks after the first operation. The anæsthetic used was chloroform. Upon the abdominal muscles being relaxed thoroughly I examined the tumour bimanually before proceeding with the operation. It occupied the right lumbar and iliac regions, and its surface was smooth and indurated, and the mass was three times the size of a normal kidney. The lower end of it extended to the brim of the pelvis on the same side. In shape it was oblong and very slightly moveable. It was now evident the tumour was not a pyo-nephrotic kidney, which I thought it might be before I was able to make a careful examination of it under an anæsthetic.

I turned the patient at once upon the left side with a pillow under the loin and exposed the right kidney by the usual incision for a lumbar nephrotomy. Its surface was smooth and glassy and had a dark-red hue. In appearance it looked like a healthy kidney, but much larger and very congested. There was no evidence of inflammatory adhesions in the circumrenal tissue. On removing from the field of operation all the perinephritic fat, I examined the organ carefully, its surface was, hard, smooth and even and in isolated spots somewhat doughy. The kidney was then explored with a needle which elicited a distinct grating noise. The point of the needle came against a hard, firm, unyielding substance. I now laid the kidney open by making an incision about three inches in length along its convex border, and grasped the organ with its contained calculus, with my right hand in front of the abdomen and pressed it upward and backward against the finger and thumb of my left hand which were held firmly on the edges of the wound in the kidney. In this way the stone was slowly and gently squeezed out of its bed without inflicting any undue damage on what was left of the secreting substance of the organ. It was a bimanual procedure. The calculus was firmly adherent to the substance of the kidney. Forceps were of no avail to dislodge it. Roughly the stone measured 4½ inches in length, 3 inches in width and 2½ inches in thickness and weighed 13½ oz. (av.) It was oval in shape. A terrific gush of blood immediately followed the removal of the stone and the patient became suddenly collapsed, whereupon I quickly grasped the kidney in my right hand and introduced my left into the wound to plug it up and so check the hemorrhage, but it had little effect upon the bleeding. It was venous oozing. Something more had to be done to save my patient, so I speedily run three of my fingers up into the cavity of the kidney and to my surprise I found I had come upon a mass of gravel. I scooped out quickly 28 small calculi each the size of a small sized bean and facetted, and also blood clots, and packed the cavity firmly with sterilized gauze. This controlled the hæmorrhage. In the mean time every thing possible was being done to rally her by means of artificial heat, hypodermic injections of brandy and of strychnine nitrate, and by enemata of concentrated coffee and brandy and by bandaging and elevation of the lower extremities. In a few moments the patient rallied a little and two or three stitches were hurriedly inserted into each end of the lumbar incision and the wound dressed antiseptically. A large pad was placed over the kidney under the abdominal bandage to keep pressure upon the organ and the patient was removed to the ward in a very weak condition. Her respirations were, however, good and regular although slow, but the pulse was very small and frequent. It was very unsteady. At times it was fairly good in volume, but in a few minutes afterwards it

could not be counted. Injected one pint of normal saline solution into the rectum after which the pulse temporarily improved in volume and regularity. This was at 1 p.m. At 2.15 the pulse again became very small and she was given subcutaneously in the pectoral region one pint of normal saline solution and at 2.30 atropine gr. 1-120, morphine sulph gr. 1-12, and nitrate of strychine gr. 1-30, hypodermically. Her temperature was 99°F. and pulse between 150 and 160, and very small. At 4 p.m. the nurse made the following record:—"Pulse still too weak to count and quite regular." At 4.15 the following enema was given:—brandy, one ounce, spr. ammon. arom, half ounce and concentrated coffee three ounces; 6 p.m., pulse stronger and patient resting quietly; 7 p.m., pulse much stronger. For the first six hours after the operation gr. 1-30 of strychine nitrate was given hourly, and an enema of concentrated beef tea and brandy every two hours. At 7.45 the nurse entered the following record on the chart:—"Patient seems very weak and complains of pain in the region of the wound by spells, but rests quietly greater part of the time." After this her condition gradually and steadily improved. She had a very good night, slept four hours. At 6 a.m. the 29th, her pulse was 96, temp. 98.8, respirations, 21. Voided since the operation 7½ ounces of urine. An interesting feature of her case was the ease and regularity with which she breathed, notwithstanding the profound shock from which she suffered.

On March the 30th, I removed the packing and irrigated the cavity of the abscess well with warm boracic solution and inserted a large rubber drainage into the kidney and packed the wound all around it with iodoform gauze. There was no bleeding. The profuseness of the discharge, which was largely decomposed urine, made it necessary for the dressing to be changed the first ten or twelve days, every two hours.

From the 30th of March until the 7th of April, her temperature ranged between 100 and 101.4°F., and pulse between 118 and 128; respirations were about 23. Quantity of urine voided on 30th of March was 33⅓ oz.; on 31st, 33 oz., and between the 1st and the 6th of April from 22½ to 28½ oz. per diem.

From the 6th till the 30th of April, pulse stood between 90 and 100 and temperature between normal and 99.6°F. The minimum and maximum quantity of urine voided during the same period, per diem (24 hours), was 18 oz. and 37 oz.

Result of an analysis of the urine on the 9th of April:—Color, light yellow (turbid); odor normal; reaction faintly acid; sp. gr. 1009; albumen present after filtration; pus cells in abundance; epithelium in abundance; heavy whitish deposit; crystals triple phosphates.

During the month of May and until she was discharged on the 26th

of June, the average amount passed daily would be about 24 oz.—minimum 15½ oz., maximum, 29 oz.

An analysis made on the 15th of May gave the following results:—Color pale; odor urinous; reaction acid; albumen present also heavy whitish deposit; pus cells and crystals present; spr. gr. 1010.

From the first of May her health improved steadily and uninterruptedly. On the 10th she was allowed to sit up in the chair.

June 19th, urine still comes in considerable quantity from the right sinus. On the left side only pus appears on the dressings.

To test the potency of the ureters on June the 20th a few c c of methylene blue, representing about one gr. was injected into the fistula on the right side through a small catheter. In 1½ hours the urine, the first which was passed afterwards, was coloured a deep blue. On the 23rd of June, the methylene blue test was applied to the left side with completely negative results.

The patient left the hospital on the 26th of June feeling well and looking healthy. The two sinuses were still discharging.

On July 20th I received the following report of her condition:—"Saw Mrs. D. and she feels very well." Results of an analysis of urine voided same date: Color pale; odor urinous; reaction faintly acid; sp. gr. 1005; albumen present after filteration; moderate amount of heavy whitish deposit; pus and epithelial cells a few; no crystals or casts; quantity about 25 oz.

The points of interest in the case are: 1. The entire absence of the most prominent symptoms characteristic of renal calculus; 2. the enormous size of the stone; 3. the small amount of healthy secreting kidney structure which is capable of maintaining life under adverse conditions.

With reference to the first point, I may state that renal calculi may and do exist and give rise to no special subjective symptoms, but this is not usually the case. Mr. Henry Morris records a case in which a calculus had grown quietly to such a size as to be felt by palpating the abdomen without giving rise to any special symptoms. Bruce Clark refers to thirteen cases of quiescent calculi out of twenty-four post-mortems and Mr. Murray, of Cape Town; Noble, of Philadelphia, and Doran of London, have each reported cases of painless renal calculi.

Then again the symptoms caused by renal stones may not be referred to the kidney or ureter. On the contrary they may be transferred to other organs. Cases of renal calculi are often treated for cystitis. A very interesting case is referred to by Mr. Morris in which a vesico-vagimal fistula was maintained for nearly ten years, to relieve a supposed case of cystitis, but at length a renal calculus was removed and

then the fistula was closed without any return of the symptoms, and the patient recovered perfect health.

The pelvic pains and cramps (flatulence), from which my patient suffered were no doubt reflex from the kidney affections, for these symptoms have all disappeared since the operation.

As regards the second point—the enormous size of the stone, I may say that the largest renal calculus I find recorded weighed 10 oz. It was removed by Henry Morris, of London. He also mentions having removed from the right kidney of a man a stone which weighed about 2 oz. 6 drs. (1333 grs.), and from the left, one that weighed 1 oz 1ʒ (513 grs.) Mr. Fostner, of Tunbridge Wells, removed one that tipped the scales at 18 5 dis. (822 grs.), and Mr. Day, of Norwich, at 2 oz 6 drs. 1331 grs.) Dr. Shepherd, of Montreal, reported in the *Philadelphia News,* April 23, 1887, having removed a stone that weighed 4 oz. 7 drs. and measured 3½ inches in length and 9 inches in circumference. It was composed of triple phosphates. The stone which I now show you weighs 13½ oz. (av.) This does not include the 28 small calculi removed at the same time.

What is of interest about the third and last point is, that the left kidney was converted into a unifocular eyst cavity with no secreting substance left, and that all the secreting substance left of the right was a layer apparently half an inch in thickness which encircled the stone. The medullary position seemed all gone—and still even this small amount was not only able to maintain life under ordinary conditions, but was capable to withstand the extra strain incidental to two major operations.

During the past two months the average amount of urine voided daily has been 24 oz., and still the patient feels well and looks healthy.

In reporting this case I do not claim to have anything new to offer to the association, but I do think it possesses sufficient interest to warrant my putting it on record.

HYSTERECTOMY FOR CANCER OF THE UTERUS.

BY

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Like most other surgical procedures this operation has undergone a decided evolution and improvement within the last few years, along the line of increased thoroughness. The lesson was learned, in the development of the operation for mammary cancer, that the glands and fat of the axilla must be entirely removed. Moreover it was found that the

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raw surfaces of the wound must be protected from inoculation with the cancerous infection and for this reason great care is taken not to cut into the diseased mass, nor even to sever the lymphatics which run from the breast to the axilla, but to remove them and the whole of the diseased or suspected tissues in continuity.

These lessons are evidently applicable to the operation for removal of the cancerous uterus. Although this organ is completely isolated for a large part of its surface, and can be easily removed in toto, with little immediate mortality, yet the final results were disappointing.

Long series of cases were published, showing that nearly all the patients finally died of cancer, recurrent, or rather persistent, and extending in parts which were already affected at the time of operation, although such involvement in disease had escaped observation. This is precisely the condition of things which obtained in regard to mammary cancer before the operation was perfected as mentioned above. The lessons from analogy have been heeded and our procedures have been improved accordingly.

Of the two ways by which the uterus can be removed, through the vagina or through the abdominal wall each has certain decided advantages, so that it is not always easy to determine which method it is better to adopt.

The first procedure to be elaborated and to be described with precision was Freund's total abdominal extirpation of the cancerous uterus (1878), but the immediate mortality of this operation was so great that it did not commend itself to surgeons, and not even the technique of tying off the broad ligaments was adopted for hysterectomy for myoma until some twelve years afterwards.

Czerny in 1878 revived vaginal hysterectomy and was followed by Billroth and A. Martin in 1880. A large number of operations were performed, and the mortality was comparatively so low that vaginal hysterectomy gained great favor and by 1885 it had become the accepted operation for cancer of the uterus, under the enthusiastic advocacy of A. Martin, who visited this country in 1887 and performed the operation here several times. In 1888 the writer published twenty-one consecutive cases with two deaths, using clamps. Other surgeons also published series of cases, with very good results, soon after.

Nevertheless there were drawbacks. Some cases were complicated by adhesions of the appendages, not readily distinguishable from infiltrations of the broad ligaments. In some the vagina was narrow, or the tuberosities of the ischia too near together. In some the body of the uterus was large and friable and foul. In some cases the condition of the patient seemed worse than the state of the uterus would account

for, and it was very important to know whether there was a spread of the disease internally. The clamps which were largely in use were painful, and there was much discharge from the vagina after operation, so that hospitals became infected, from this, and from the discharges from the stumps of abdominal hysterectomies, which then were performed with extraperitoneal ligature and fixation of the cervix. There was great longing for a proper and satisfactory means of removing the whole uterus from above.

Then came 1890 and the Trendelenburg position, which changed everything. By 1892-3, total abdominal hysterectomy for fibroids was firmly established at the great meetings of the American Gynecological Society in those years. Thus the possibility was given of safely removing the cancerous uterus from above, substantially after the method of Freund. This procedure had failed in the beginning for want of the elevated position of the pelvis, for want of thorough asepsis and for want of all the little improvements in preparation, technique and after-treatment, which meanwhile had been reducing the mortality of ordinary supravaginal hysterectomy for myoma from 60% to 5%.

In the reaction which ensued from vaginal in favor of abdominal hysterectomy many surgeons abandoned the former entirely, and removed the uterus, and as much of the vagina as might be necessary always from above. But there were still disadvantages connected with this action. The cancerous cervix was septic; and it was necessary to cleanse, curette and cauterize it before it was safe to lift it out through the abdominal wound. Many cases died, and in fact more than by vaginal hysterectomy. This led to further developments of the preliminary vaginal work, so that it grew into a removal of the diseased cervix and separation of the upper part of the vagina, with closure of the vaginal flaps over the stump of the cervix, before opening the abdominal cavity from above.

When all this vaginal work was done, however, it was hardly worth while to make an abdominal incision, except in a few cases, for ordinarily it was possible to pull down the uterus and tie off the broad ligaments and make a finished vaginal hysterectomy without clamps.

In 1895 the writer went to Paris to study the improvements in vaginal hysterectomy made by the French surgeons, and for the next two years he critically compared the vaginal with the abdominal methods in a great variety of affections of the uterus, with the result that he became convinced that the vaginal procedure, although valuable in a certain limited number of cases is much inferior as a method of election to abdominal hysterectomy. In cancer of the uterus he was led to begin the operation by opening the abdomen in certain cases in which it was

doubtful whether the conditions would warrant a hysterectomy, owing to resistance in the broad ligament, or other symptoms, which might indicate that the disease had extended into the pelvic tissues.

Adopted first in difficult and doubtful cases, this soon became his regular procedure, first examining the pelvis from the inside, and then, if the disease had not proceeded too far, going on to tie off the broad ligaments and sever all the connections of the uterus in the pelvis, and then, after closing the abdominal wound, finishing with a very simple division of the vagina above the limit of disease and extraction of the uterus and closure of the wound in the vaginal roof.

The superiority of this method in difficult cases will be easily appreciated by anyone who has witnessed or performed a vaginal hysterectomy where there were complications or difficulties. Moreover it combines the advantages of opportunity to reject cases unsuitable for operation, and avoidance of septic infection of the abdominal cavity and cancerous inoculation of the wound-surfaces, with the possibility of removing the glands which may be already harboring the advanced guard of the cancer.

Werder of Pittsburgh, has lately published a detailed account of a modification of this method. He carries the dissection down all around the vagina so far that he can push the whole uterus and appendages down into a position of prolapse. Then he unites the peritoneum above it, joining the cut edges so as to close the abdominal cavity completely below. The abdominal incision is next closed, and finally the prolapsed uterus is easily removed by severing the inverted vagina with the thermocautery.

In further attempts to improve the remote results of the operative treatment of cancer of the uterus, in the year 1895 Ries devised and Rumof performed the removal of the tissues at the base of the broad ligament and the glands at the bifurcation of the iliac arteries, thus shutting off one great cause of relapse, and following out the analogy of the axilla. At about the same time Clark of Johns Hopkins was working along the same lines and in the next year he published his work in the bulletin of that university, and thus contributed largely to the use of the new methods in this country.

Unfortunately, however, these methods are still too little used. Too many cases are operated on too late. In too many, diseased glands are left, and far too often the cut surfaces of the vagina and broad ligament are rubbed full of cancer juice, so that the permanent results of the operation are not what they should be, and eventually will become.

On the other hand vaginal hysterectomy has incontestable advantages in certain cases. It can be performed very rapidly, especially by

the use of clamps, involving of course less shock, the whole duration of the operation being 5 to 15 minutes.

It is easiest of performance in very fat elderly women, with capacious vaginæ; just the cases in which the perfected abdominal operation is inconvenient or unadvisable. Although not the method of election it is therefore indicated in cases.

a. Where the strength of the patient will not permit a thorough abdominal operation.

b. When the patient is very fat and the disease is quite recent.

c. Provided in either of these cases the uterus is quite movable, and there is plenty of room in the vagina and between the tuberosities of the ischia, and it is possible to remove all the diseased tissue in the vagina before opening up wound surfaces.

Within these rather restricted limits there is still a field for vaginal hysterectomy for cancer, but as a rule we should look to permanent results, which are best attained by painstaking and thorough operation through the abdominal incision.

Where such procedure is contraindicated or impossible, it is best not to attempt the terrible and difficult vaginal operation in advanced cases, but to fall back on palliative methods such as thorough curettement and careful cauterization, or the use of zinc chloride, etc. The patients will live as long or longer, and surgery will benefit in the end, because every such case will be a warning to patients to apply for operation earlier in the course of the disease, while every radical operation followed by death or quick relapse only discourages patients from submitting to hysterectomy even in suitable cases.

Whether it is best to perform any operation on the diseased cervix, as a preliminary to opening the abdomen, must depend on the nature of the case. The main point to keep in mind is that any incised or raw surface which is made will be likely to become inoculated with the cancer. Therefore the only reason for interfering with the cervix before opening the abdomen is the fact that there is a growth in, or springing from the cervix, so large as to interfere with the abdominal work. If this is the case the diseased tissue should be rapidly scraped away, the hæmorrhage checked with the cautery and the parts cleansed and tamponed with a strip of gauze soaked in peroxide of hydrogen. If the patient is weak this may be done several days before the main operation, and it is wonderful to see the improvement in strength and nutrition which will ensue after the removal of the foul mass.

On the other hand, one must not wait too long with the hysterectomy, for the patient feeling relieved is likely to refuse further operation, and all the while the infection of the lymphatics is steadily progress-

ing, all the more rapidly from opening the lymphatics in curettement. Just before the hysterectomy, however, the vagina is well washed out with an antiseptic, so that if it is opened inadvertently from above there will be as little risk as possible of infection.

As soon as the abdomen is opened, the patient being in the full Trendelenburg position, the first thing in order is to make a careful examination of the abdominal viscera and the tissues in the pelvis, in order to find out whether the conditions are such as to warrant the complete operation. After looking at the mesentery and omentum to see whether there are any little cancerous nodules, the broad ligaments are carefully palpated, and if they are infiltrated one must decide whether there is a possibility of removing all the diseased tissue. If the infiltration extends clear to the pelvic wall, forming an immovable mass, further operation is contraindicated.

The region of the bladder and the course of the ureters is likewise carefully examined. If by the skill of the operator, or his assistants, it is possible to have catheters put in the ureters, before opening the abdomen, this part of the examination, as well as the most difficult part of the operation will be greatly facilitated. Nevertheless, with care and discrimination and good anatomical knowledge it is possible to dispense with catheterization of the ureters, and thus the time of anæsthesia is shortened. The ideal procedure is to slip catheters into the ureters, under cocaine, before the ether is given.

The next point to examine with attention is the bifurcation of the iliac arteries on each side, for here lie the glands which are first invaded in cancer of the cervix. If these glands are simply enlarged the operation is warranted, but if they form an immovable packet, involving the iliac veins, it is necessary to abandon the operation. Surgically it is possible to tie the common iliac vessels, but it is not justifiable in such cases. The patient will probably die, and if by chance she live it is morally certain that the disease will recur, for the infection will already have passed so far that the diseased tissues cannot all be removed.

By a careful examination of this kind it will be found inadvisable to perform any radical operation in many cases, in which the uterus might be removed with more or less difficulty per vaginam. The patients will thus be spared unnecessary shock, and the surgeon will avoid dangerous and useless interventions, with unfortunate and distressing sequelæ. On the other hand some cases which seem most unpromising by vaginal examination, where for instance the broad ligaments feel hard, and there are immovable masses in the pelvis, are found on examination through an abdominal incision to be perfectly feasible for hysterec-

tomy, since they are simply cases of cancer of the cerevix complicated with pelvic inflammation, adherent tubes, etc.

In removing the uterus the ovarian artery and the artery of the round ligament should be carefully tied, without gathering together the tissuses between them, as is often done in hysterectomy for myoma. It is desirable to open widely the space at the side of the uterus in order to facilitate the subsequent steps of the operation.

After careful and very thorough separation of the bladder in front, and of the connective tissue at the sides, the uterine artery is secured as far from the uterus as possible. It is just here that the skill and anatomical knowledge of the operator is most needed.

The ureter runs just under the uterus, crossing it obliquely, and must on no account be injured. The lateral vaginal arteries come off from the uterine, and the ligature should be placed on the proximate side of the origin, close to the internal iliac, in order that the further steps of the operation may be comparatively bloodless, and to facilitate the clearing out of the gland—containing fat around and below the ureter.

Proyer recommends that ligatures be placed on the main trunks of the internal iliac arteries, thus rendering the whole field of operation bloodless. To make sure against recurrent hæmorrhage from anastomosis he ties the uterine, obturator and superior vesical arteries also. It seems to be proved by his experience that both internal iliacs may be ligatured in continuity without causing any tissues to slough. Nevertheless it can hardly be said that surgical opinion, as yet, favors the ligation of the internal iliacs although if experience shows that shock is not unduly increased and that collateral circulation is always established, there are many advantages in this brilliant procedure. The origin of the internal iliacs must be exposed in the perfected operation in order to remove the glands which lie about it, and it is really easier to tie this artery than to trace the uterin back to its source and to tie it there, deep in the pelvis and close to the ureter.

The uterus being removed the bladder gets sufficient nourishment from anastomosis with branches of the superior hæmorrhoidal artery while the gluetal and perineal region is supplied with blood from anastomosis with branches of the deep epigastric and of the circumflexa femoris in other branches of the femoral artery.

I have never found it necessary to tie the trunk of the internal iliac, although I have sometimes tied the anterior branch, thus suppressing the circulation in the uterine and vesical and vaginal arteries, but not interfering with the gluteal, ilio-lumbar and lateral sacral arteries.

The uterine arteries having been tied and severed the uterus can be

lifted up, carefully sundering the utero-sacral ligaments and the rest of the peritoneal attachments of the uterus. Traction on the uterus lifts the floor of the pelvis, and the ureter is next carefully dissected out and pushed forward. Next the thickened tissues around the cervix and vagina are gently enucleated with the finger, and all fatty tissue, which is presumably gland-bearing, is dissected away from the floor of the pelvis. This procedure is carried on until the uterus is only connected with the body by the vaginal tube, which in turn is to be separated from its surroundings as far as may be deemed necessary.

In very simple and clean cases the upper part of the vagina, including all the cancerous tissues, may be shut off with two clamps on each side, and the vagina divided between the clamps. The stump is now carefully cleaned and pared and united with catgut, and the peritoneum closed over it. If the stump of the vagina is so short that this would leave too much space between the vagina and the peritoneum, the former may be drained with gauze, instead of being sewed together.

If the disease is at all advanced it is better not to open the vagina, but to push the uterus down and afterwards to remove it from below. If the dissection has been carried as far as Werder recommends it is possible to close the peritoneum over the uterus, but this involves a deep and difficult dissection, with considerable danger of cutting into the vagina, and thus risking infection. It also leaves the woman substantially with no vagina, which is often a matter of importance.

I am accustomed to free the uterus and the upper part of the vagina and then to sew a pad to the fundus uteri and pushing the uterus down as far as possible to pack the pad into the bottom of the pelvis. This checks oozing and keeps the intestines out of the way when the uterus is finally removed.

Formerly this dissection was deemed sufficient and the abdomen was closed, but the analogy with the axilla requires us to remove all the glands, in order to extirpate the furthest lurking places of the disease.

To accomplish this the edge of the broad ligament, where the stump of the ovarian artery is held by its ligature, is lifted up and the peritoneum is divided with blunt scissors, or on a director, sufficiently to reach the bifurcation of the iliac artery, or about three inches.

The ovarian vessels follow the flap which is lifted up. The ureter must be found as it comes up from the side of the pelvis, substantially parallel with the iliaca interna. The ureter is freed and pushed downward and inward, disclosing the fat and glands at the bifurcation of the vessels. These tissues are carefully removed, just as in the axillæ, by the fingers, or by teasing them out with a clamp or with a forceps without sharp teeth. The arteries are not easily injured but the great

veins must be respected, for if they are torn we are in the presence of a surgical accident of some gravity. The internal iliac vein may be tied without bad results, but in the only case reported (by Kelly), in which the common iliac vein was torn, although hæmorrhage was stopped by successfully tying the vein, yet the leg became gangrenous.

All visible glands and all fat which may contain glands having been removed, the cut in the peritoneum on each side is united with catgut as far down toward the bladder as possible. The peritoneum is cleansed, all sponges removed and the ureters laid as far as possible in their proper positions, the omentum is pulled down and the abdomen closed.

Next the patient is placed in the lithotomy position and the uterus is pulled down, the everted vagina is carefully cleansed and disinfected, and the diseased tissues enveloped in a pad wet in bichloride solution. The vagina is then severed well above the disease, when the uteria is pulled out, followed by the pad which has been sewed to the fundus.

The free edges of the pelvic peritoneum are easily found, brought down and united with catgut, although this is by no means essential.

The vagina is tamponed with gauze and for the last twelve years I have always used a convenient adaptation of the Miculicz packing for tamponing the vagina in cases of vaginal hysterectomy. A square of gauze is seized by the middle with a clamp and introduced as far as may be necessary. The gauze is then fitted with the fingers to the pelvic space and into the bag thus formed strips of gauze are introduced sufficiently to stop all oozing. This method has the advantage that the strips may be removed singly on the next day, relieving pressure on the bladder and rectum; but the bag remains for several days until the raw surfaces are completely roofed over by adhesions.

THE TREATMENT OF NASAL DEFORMITIES BY SUBCUTANEOUS INJECTION OF HARD PARAFFIN.

BY

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At the meeting of the Canadian Medical Association in September, 1902, I had the privilege of reading a short paper on the subcutaneous injection of paraffin wax, and of exhibiting two patients that I had subjected to that treatment; since that a much wider experience of the method has been gained, the technique improved and some of the results obtained by Eckstein, Paget and others, are I venture to suggest little short of marvellous.

Melted paraffin wax has been used with success to overcome many

Read before the Maritime Medical Association, 1903.

TWO DAYS BEFORE TREATMENT.

FOURTEEN DAYS AFTER TREATMENT.

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physical deformities; but it is, with reference to the suitability of this method in the treatment of nasal deformities that I beg to draw your attention today and show photographs taken before and after treatment of four of my cases. Sunken or what are known as saddleback noses of diverse degrees of flatness and ugliness, the result of destruction, wrought by congenital or acquired syphilis, tuberculosis or traumatism, have been built up and made presentable, if not handsome, by this method.

In carrying out the treatment the following are the essential points:—

The Melting Point of the Paraffin.

When Gersuny, the father of paraffin prosthesis, published his first results in 1900, he recommended paraffin melting at 104°F. Eckstein, who enthusiastically took up this work, and experimented on animals with paraffins of higher melting points, came to the conclusion that paraffin melting at 132°—140°F., gave better results. In July last, I injected 10 c. c. of paraffin melting at 102°, 107° and 112°F. beneath the subcutaneous tissue of the noses of each three rabbits. The shape of the nose of the rabbit injected with paraffin at 112° has remained unchanged, in the others the result has not proved satisfactory. The nose of one of my first patients built up on the 6th of September last with paraffin melting at 104°F. has remained unchanged in outline and the appearance of it is now better than it was a few weeks after the operation, when I exhibited the case at the Montreal meeting.

In the two cases I have recently treated I used paraffin melting at 112°F. and I believe paraffin at that melting point will prove most satisfactory for the following reasons: 1st. It is easy to work with; 2nd. It can be injected at a temperature (of 118°—120°F.), which does not endanger the vitality of the tissues, by burning. 3rd. It becomes a solid substance at the time of, or a few seconds after injection. and of a permanent hardness in 15 or 20 minutes, and with the exception of slight hr'nkage (which is common to all paraffins), retains its original shape, unaffected by fever temperature.

The Best Syringe—A 5 c.c. solid metal syringe with a metal piston having both a push and screw action answers the purpose well; the syringe and proximal part of the needle should be covered with rubber tubing to retain the heat. The needles should be $\frac{3}{4}$ to $1\frac{1}{4}$ inches long, curved or straight, and the calibre about that of an antitoxine needle.

Preparation of the Paraffin Syringe and Needle.

These must be sterilized and placed in a bath of sterile lotion at 120°F. until required.

The Operation can be done without an anæsthetic, under a local

anæsthetic, but by preference under general anæsthesia. Immediately before injecting the paraffin the syringe is filled and tried, and a few drops of hot water drawn into the needle, the point of the needle dipped in boiling water for two or three seconds and inserted at once into the tissues. The needle puncture should be made ½ inch or more from the depression and carried subcutanously a little beyond the point of greatest deficiency, making sure that the sides and root of the nose are firmly compressed, to prevent escape of the paraffin into the loose tissue near the inner canthi, and on to the forehead. The piston is then slowly and continuously compressed or screwed in, until sufficient paraffin has been injected, meanwhile the point of the needle can be moved about as desired. After a few seconds the needle is withdrawn. In two or three minutes the paraffin becomes firm and the assistant can remove his fingers, but the operator must continue moulding the nose to the desired shape for fifteen or twenty minutes when the paraffin becomes thoroughy set. Should the needle clog before sufficient has been injected, it must be withdrawn, cleaned and the operation repeated. Usually it is best to insert the needle from near the point of the nose.

The After Treatment. Flexile collodion is applied to the needle punctures and a lint dressing placed over the nose. If swelling of the nose or œdema of the eyelids occurs cold compresses should be applied, and the swelling will disappear in three or four days.

The quantity of paraffin required, varies with each case, (enough being used to correct the deformity so far as possible), the amount necessary in nose cases is usually between 2 and 8 c.c.'

The Dangers of Paraffin Injection.

Accidents following the injection of paraffin have been few, only two of a serious nature having been reported in European and American literature, in relation with this operation so far as I have been able to learn; in both the cases mentioned there was loss of sight in one eye shortly following injection. The first of these was reported by Leiser in April, 1902, and the other by Hurd, of New York, on the 11th of this month. In Leiser's case, thrombosis of the opthalmic vein followed injection. In Hurd's case, embolism of the central artery of the retina is said to have followed. This, I think, is an anatomical impossibility unless the patient had a patent foramen ovale. Many cases have now been reported in which no accidents have occurred. Of these 29 are by Paget, and 19 by Eckstein. A suppurating point appeared in one of Bush's cases, but after the pus escaped, healing occurred, the ultimate result being good.

Congestion of the skin over the paraffin will follow when too much has been injected but this hyperæmia disappears in one or two months. In my first case a small superficial slough, the size of a pea, formed in the skin of the nose, the result of high tension, but it separated, and left no disfigurement. The greatest danger of this treatment is undoubtedly venous embolism which I believe is a preventible accident if sufficient care be taken in performing the operation. The chief facts in favour of this method of dealing with nasal deformities may be reviewed:— 1st, that nasal deformities the result of destruction, or non-development of the nasal bones, which have not previously been treated successfully by any other method can be obliterated. 2nd, that after some experience in working with paraffin the operation is easily performed and gives little or no pain. 3, that results are good and the risks few.

I think it can now be justly claimed, that the subcutaneous injection of paraffin has acquired a firmly established reputation for the correction of many nasal deformities and many persons who were rendered conspicuously hideous from flat or sunken noses and were constantly made to feel their misfortune by the remarks and stares of those with whom they came in contact, have at least been rendered unnoticeable by this treatment and to many of these the knowledge that they are no longer oddities but presentable persons, has brought a feeling of self-respect and a cheerful expression denoting much happiness, not previously experienced.

WILLIAM ERNEST HENLEY—POET AND PATIENT.

BY

J. G. Adami, M.D.

There is a little green backed "Book of Verses," by W. E. Henley which should be—but somehow is not—known and treasured by every medical man who finds occasional solace in literature. For the booklet, published in 1888, opens with some thirty short pieces grouped together under the title "In Hospital," and these portray in language so vivid and intimate, so singularly apt, the episodes of hospital life from the point of view of the patient, that their appeal to us is immediate. They are surely unique. Another and greater poet, Paul Verlaine, in "Mes Hôpitaux," has given us vignettes of a like order but then in prose: there is nothing that approaches Henley's impressions penned from the sick bed in the old Edinburgh Infirmary, that Hospital—

> . . . grey, quiet, old
> Where Life and Death like friendly chafferers meet,

in which for eighteen months or more he lay, a patient in Lister's wards.

Why the verses are not better known has been a mystery to me ever since they came to occupy a place on my shelves. I have often thought to bring them to the notice of those who read these pages but desisted, doubting whether an article on such a subject might not come as a "bolt from the blue." Henley's death—a week ago—(on July 11th) seemed to afford the right occasion—and forthwith I found that medical men were not alone in their lack of knowledge of Henley and his work. In a great northern English centre, wealthy, very prosperous, a university city, to boot, I spent hours visiting the chief shops for books, both first and second-hand, and never a copy of the "Book of Verses" could I obtain. At one large and long established departmental store, I was gravely informed at the poetry counter, that they did not know any writer of that name, and certainly had never been asked for his works; at another book shop, the first in the city, Henley was known, it is true, and I was offered his last volume—but neither the "Book of Verses" nor his collected poems were obtainable. They did not keep him because he did not sell; he was a disappointment and more than one of his works had proved a drug and had had to be sacrificed at any price. And this on the very day when every reputable paper in Great Britain from *The Times* downwards devoted two to three columns to an obituary and critique of our author, acknowledging him freely to be one of the masters of the late Victorian era. Verily the poet has fallen upon evil days. His lute is played more subtly, his themes and melodies are more varied than ever, but the children of the market place are heedless of his song. But in this case the song seems worth heeding.

It was in 1874 that Henley entered the wards of the old Royal Infirmary at Edinburgh. He was then at twenty-five, after having graduated with distinction at St. Andrews, a struggling writer of verses and contributer to the "Cornhill," under the editorship of Leslie Stephen. There for close upon two years—a weary time for a man of active mind and Bohemian habits—he remained under treatment by Lister for what I gather must have been tuberculous arthritis, a period so long that the hospital and hospitalism sunk into his being. His impressions written upon the sick bed were only published some twelve years later, and then in a little book of "Voluntaries," edited by Mr. H. B. Donkin, for the benefit of a hospital in the East End of London. Later they were incorporated in the "Book of Verses" published that same year.

To make the work known I shall quote freely.

Here first is Henley's entrance to the hospital he was to know so well:—

> A small, strange child—so aged yet so young—
> Her little arm besplinted and beslung,
> Precedes me gravely to the waiting room.
> I limp behind, my confidence all gone.

The grey-haired soldier porter waves me on,
A tragic meanness seems so to environ
And so on I crawl, and still my spirits fail:
These corridors and stairs of stone and iron
Cold, naked, clean—half workhouse and half jail.

So to the surgical out-patient room for examination:—

Here, on a bench a skeleton would writhe from . .
Angry and sore I wait to be admitted
Wait till my heart is lead upon my stomach
While at their ease two dressers do their chores.

One has a probe—it feels to me a crowbar—
A small boy sniffs and shudders after blue-stone
A poor old tramp explains his poor old ulcers.
Life is (I think) a blunder and a shame.

He is admitted and lies first in the main surgical ward, with its "gaunt brown walls" looking "infinite."

The atmosphere
Suggests the trail of a ghostly druggist,
Dressings and lint on the long, lean table.
Whom are they for?
The patients yawn
Or lie as in training for shroud and coffin
A nurse in the corridor scolds and wrangles
It's grim and strange.
. . . . . .
Oh, a gruesome world!

The limb has to be operated upon and we have the sonnet—"Before."

Behold me waiting—waiting for the knife.
A little while, and at a leap I storm
The thick, sweet mystery of chloroform,
The drunken dark, the little death-in-life,
The gods are good to me: I have no wife,
No innocent child, to think of as I near
The fateful minute: nothing all too dear
Unmans me for my bout of passive strife.
Yet am I tremulous and a trifle sick
And face to face with chance, I shrink a little
My hopes are strong, my will is something weak . .

So to the operating table :—

Then they bid you close your eyelids
And they mask you with a napkin,
And the anæsthetic reaches
Hot and subtle through your being.

And you gasp and reel and shudder
In a rushing swaying rapture
While the voices at your elbow
Fade — receding — fainter — fainter
. . . . . .
And you wrestle, blind and dizzy
In an agony of effort

Till a sudden lull accepts you,
And you sound an utter darkness . .
And awaken . . . . with a struggle . .
On a hushed, attentive audience.

And later:—

. . . . Then my senses fleet:
All were a blank, save for this dull new pain
That grinds my leg and foot: and brokenly
Time and the place glimpse on to me again;
And unsurprised, out of uncertainty,
I wake — relapsing — somewhat faint and fain
To an immense, complacent dreamery.

Then comes the period of healing; the days can be endured but the long and weary nights are "hideous, asleep or awake."

Shoulders and loins
Ache . . . . . !
Ache, and the mattress,
Runs into boulders and hummocks,
Glows like a kiln, while the bedclothes
Tumble importunate, daft —
Ramble and roll, and the gas
Screwed to its lowermost,
An inevitable atom of light,
Haunts, and a stertorous sleeper
Snores me to hate and despair.
All the old time
Surges malignant before me;
* * * * *

Far in the stillness a cat
Languishes loudly. A cinder
Falls, and the shadows
Lurch to the leap of the flame. The next man to me
Turns with a moan; and the snorer,
The drug like a rope at his throat,
Gasps, gurgles, snorts himself free, as the night nurse,
Noiseless and strange,
Her bull's eye half lanterned in apron
(Whispering me, "Are ye no sleepin' yet?")
Passes, list-slippered and peering,
Round . . . and is gone.

Then we have the picture of Lister on his rounds and the old familiar ward classes—as seen by the patient :—

Hist? . . .
Through the corridor's echoes,
Louder and nearer
Comes a great shuffling of feet,
Quick, every one of you,
Straight your quilts, and be decent!
Here's the Professor.

In he comes first
With the bright look we know,
From the broad white brows the kind eyes
Soothing yet nerving you. Here at his elbow
White-capped, white-aproned, the Nurse
Towel on arm and her inkstand
Fretful with quills.
Here in the ruck, anyhow,
Surging along,
Louts, duffers, exquisites, students, and prigs

Whiskers and foreheads, scarf pins and spectacles,
Hustles the Class! And they ring themselves
Round the first bed, where the Chief
(His dressers and clerks at attention),
Bends in inspection already
. . . . . shoulders .

. . . . . serry and shove;
While from within a voice
Gravely and weightily fluent
Sounds; and then ceases; and suddenly
(Look at the stress of the shoulders!)
Out of a quiver of silence
Over the hiss of the spray,
Comes a low cry, and the sound
Of breath quick intaken through teeth
Clenched in resolve. And the master
Breaks from the crowd, and goes,
Wiping his hands,
To the next bed. . . . . .

I would like to quote in full the series of pictures which ensue of hospital characters: the casualty patient; the weak witted ploughman; the suicide—the staff nurse, old style, with her "antique liveliness and ponderous grace" and "thick Scot wit that fells you like a mace"; the staff nurse, new style, "blue eyed and bright of face but waning fast into the sere of virginal decay" who talks Beethoven, disapproves of Balzac, speaks Latin with the right accentuation and gives at need "draught, counsel, diagnosis, exhortation; the scrubber—each picture touched in so surely that the character stands clear and incisive as in an antique cameo. There are two, however—or three—that I cannot desist from quoting. The one is that of "The Chief"—a noble tribute to, or, rather, a nobly worded delineation of the greatest of surgeons.

His brow spreads large and placid, and his eye
Is deep and bright, with steady looks that still.
Soft lines of tranquil thought his face fulfill—
His face at once benign and proud and shy.

If envy scout, if ignorance deny
His faultless patience, his unyielding will,
Beautiful gentleness and splendid skill,
Innumerable gratitudes reply.
His wise, rare smile is sweet with certainties,
And seems in all his patients to compel
Such love and faith as failure cannot quell
We hold him for another Hercules
Battling with custom, prejudice, disease,
As once the sons of Zeus with Death and Hell.

This it must be remembered was written when the fight was still raging hot and strong, when Lister and his methods were still on trial. Had ever poet worthier subject to describe, or sugeon finer tribute to his excellence!

Then there is the House Surgeon :—

> Frank-faced, frank-eyed, frank-hearted; always bright
> And always punctual—morning, noon and night;
> Bland as a Jesuit, sober as a hymn;
> Humorous and yet without a touch of whim;
> Gentle and amiable, yet full of fight.

Two days ago I was lunching with Mr. Watson Cheyne who incidentally remarked that Henley was in hospital while he was House Surgeon to Lister. Is this I wonder the young Watson Cheyne? It might be.

Last there is the "Visitor," a character sketch which in its perfectness rivals that of the great "Chief."

> . . . . . her soft white hair adorns
> Her withered brows in quaint straight curls, like horns;
> And all about her clings an old sweet smell,
> Prim is her gown and quaker-like her shawl,
> * * * * * * * * *
> A wee old maid that sweeps the Bridegroom's way,
> Strong in a cheerful trust that never fails.

I purposely forbear to give the whole of this exquisite sonnet; something must be left for others to find and enjoy for themselves. If this original edition is not obtainable let each buy for himself the "Poems—A Book of Verses: London Voluntaries," of which since 1898 it would seem that there have been several small editions.

At a later period through the influence and care of friends the poet was transferred from the public to a private or semi-private ward. Leslie Stephen interested others in him, among them Robertson Smith and Robert Louis Stevenson. We obtain a glimpse in Stevenson's letters of the beginning of a memorable intimacy which ended bitterly. Stevenson writes to Mrs. Sitwell in January, 1875:—

"Yesterday Leslie Stephen, who was down here to lecture, called on me and took me up to see a poor fellow, a poet who writes for him (in the *Cornhill Magazine*), and has been eighteen months in our infirmary, and may be, for all I know, eighteen months more. It was very sad to see him there in a little room with two beds, and a couple of sick children in the other bed. A girl came in to visit the children, and played dominoes on the counterpane with them; the gas flared and crackled; the fire burned in a dull, economical way; Stephen and I sat on a couple of chairs and the poor fellow sat up in bed with his hair and beard all tangled and talked cheerfully as if he had been in a King's palace or the great King's palace of the blue air."

Thus the acquaintance began which influenced the lives and work of both men, which led to the writing of plays together, of four prose dramas:—"Deacon Brodie," "Beau Austin," "Admiral Guinea,"

"Robert Macaire." The first of these was played in London and, oddly enough, in Montreal (1887). I do not know that it has since been staged. But, returning to the private ward described by Stevenson, it is interesting to have Henley's own impression of the place.

Here in this dim, dull, double-bedded room
I play the father to a brace of boys
Ailing, but apt for every sort of noise.
* * * * * * * * *
They eat, and laugh and sing and fight all day;
At night they sleep like dormice. See them play
At operations:—Roden, the Professor
Saws, lectures, takes the artery up and ties;
Willie, self chloroformed, with half shut eyes
Holding the limb and moaning—Case and Dresser.

As the needy poet gained in health and strength Stevenson took him for long drives. In the lines entitled "Pastoral," we have his appreciation of the first of these; the delight at leaving behind the bare walls and seeing the good green land in all the freshness of Spring

O, the brilliance of blossoming orchards
O, the savour and thrill of the woods
When their leafage is stirred
By the flight of the Angel of Rain!*

The series of verses throw light upon the friendship between Henley and Stevenson and upon its quality—on the part, at least, of our poet. In the Envoy, to Charles Baxter he writes:—

Do you remember
That afternoon—that Sunday afternoon!
When, as the kirks were ringing in,
And the grey city teemed
With Sabbath feelings and aspects,
Lewis—our *Lewis* then,
Now the whole world's—and you
. . . . . came
Laden with *Balzacs*
. . . . . .
To that transformed back-kitchen where I lay
. . . . . .
Dear *Charles* since then
We have been friends, Lewis and you and I
(How good it sounds, "Lewis and you and I")
* * * * * * * *

But he who could write thus of his friendship, comparing the three of them to the immortal *Musketeers* did not hesitate to print at the same time the following lines under the heading "Apparition," clearly

* Stevenson writes of this first drive: "The whole country is mad with green. To see the cherry blossom bitten out upon the black firs and the black firs bitten out upon the blue sky, was a sight to set before a king. You may imagine what it was to a man who has been eighteen months in an hospital ward. The look of his face was as wine to me."

referring to Stevenson's first visit to the "transformed back kitchen":—

> Thin-legged, thin-chested, slight unspeakably,
> Neat-footed and weak fingered; in his face—
> Lean, large-boned, curved of beak, and touched with race,
> Bold-lipped, rich-tinted, mutable as the sea
> The brown eyes radiant with vivacity—
> There shines a brilliant and romantic grace,
> A spirit intense and rare with trace on trace
> Of passion and impudence and energy.
> Valiant in velvet, light in ragged luck,
> Most vain, most generous, sternly critical
> Buffoon and poet, lover and sensualist;
> A deal of Ariel, just a streak of Puck,
> Much Antony, of Hamlet most of all
> And something of the shorter Catechist.

No true friend could have written those lines and seen them printed. On the part of Henley I do not hesitate to say that it was amusement, interest, community of ideas and of purpose in life that made the intimacy worthy of being preserved by him; loyal friendship never existed. I am by no means a whole-souled admirer of Stevenson; to me the above appreciation of him seems curiously just, but I do protest that Henley was incapable of knowing what friendship meant if he could write thus.

And the denouement bears me out. Later he writes:—

> . . . . .
> And so it ends
> With friends.
> Friends . . . old friends . . .
> And what if it ends?
> Shall we dare to shirk
> What we live to learn
> It has done its work
> It has served its turn;
> * * * * * * * *

They had drifted apart—and the drifting it is generally admitted, was on the part of Henley. There were, it may be, "some private excuses for resentment," but to the outsider it seemed that, more particularly, Henley was irritated at the vogue Stevenson had gained, whereas he himself had failed to gain more than a "succes d'estime" for his more serious writings; and so it ended after Stevenson's death in Henley's appalling and unforgivable attack on his old friend in the criticism contributed by him in 1901 to the *Pall Mall Magazine* upon Mr. Graham Balfour's "Life of Stevenson." I speak, it may seem with some heat, but I do so with the memory that one now dead, who was a true friend to me, experienced a like treatment from our poet; he had visited him when in hospital in Edinburgh, and had cared for him; himself a man of vast knowledge and wide sympathies he had appre-

ciated Henley's evident talent and had gained work and opportunities for him; and the poet turned and rent him.

But, it may be asked, are we to ascribe this to Henley's natural character or to his infirmity? It is a difficult question to decide. Though of large frame and burly he was left by the disease which took him to the infirmary a permanent cripple and something of a permanent invalid. A jealousy and bitterness, an aptitude to hit viciously below the belt if I may so express it, or indulge in surreptitious kicks, is curiously frequent in those who are crippled, in those who realizing their impotence, and imagining their capacity if only they were as others—see those others winning in the race. There is indeed a historic parallel in the case of Pope. Were we in their place could we restrain ourselves from doing likewise? All that I would say is that under the conditions it was a mockery for Henley to extol his friendship for Stevenson or for any other man; it was intimacy, not friendship proper.

With two exceptions, modestly included under the title of "Echoes" —I refer to the ballad "O gather me the rose,"* and the lines beginning, "Out of the night that covers me," both it may be noted written when he was in the wards, Henley wrote nothing finer than this "Hospital" series. In the rush of active life he wrote poems, it is true, but they do not appeal. Upon that later life I shall not dwell—upon his fame as editor of the *Scots Observer,* which became later the *National Observer,* on the subsequent editorship of the *New Review* and so on—nor, interesting though it is, shall I discuss the pioneer part played by him in awaking the spirit of Imperialism throughout England and her colonies and the stimulus he afforded to Kipling and other younger writers. I shall have, I hope, done my duty if I lead others to read and appreciate those verses, the only verses of their kind, in which he so vividly paints the life and the impressions of a patient in the wards of the old Edinburgh Infirmary when Lister was there as surgeon.†

* This, it is true, is an echo of Herrick, but is more exquisite than its original.

† For data bearing upon Henley's intimacy with Stevenson, I am more particularly indebted to an unsigned article in the literary department of the *Times* of July 17th.

THE

Montreal Medical Journal.

A Monthly Record of the Progress of Medical and Surgical Science.

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CANADIAN MEDICAL ASSOCIATION.

The thirty-sixth annual meeting of the Canadian Medical Association, which was held in London during the last week of August, was only excelled in point of numbers by the Montreal meeting the previous year, but it has been surpassed by none, in respect of those qualities of harmony and friendship, which are indeed as important as the scientific elements of a meeting. Dr. Moorhouse presided with kindliness and tact, and had a friendly word for everybody, even in the midst of his exacting duties. His confreres in London gave him a cordial support in the offices of hospitality, and provided many little diversions, which found no place in the official programme.

The number in attendance the first day was small, but towards the close of the second day there was a sudden exacerbation in membership as if it were set up by the proximity of the entertainments. About these same entertainments, there may be some, who might think it open to discussion whether the Association acted with the highest wisdom in accept-

ing the very elaborate hospitality of a firm of manufacturers of proprietary preparations, no matter how admirable those products may be.

The attendance from provinces other than Ontario was lamentably small. The profession in Montreal has always been noted for its diffidence, but it could not be charged with self-glorification, even if it had sent considerably more than four members to the London meeting. Many members seem to think their whole duty is done, when they signify that they will read a paper and have their names set down upon the official programme. Of forty-six persons, whose names were so brought forward, seventeen failed to put in an appearance, and in the case of several of them it would appear that their shyness is constitutional for the same thing happened in regard to the July meeting in St. John.

There are two methods of preparing a presidential address; to pass in review the events that have transpired in medicine and surgery during the year, and to cast a glance backward upon the progress of those sciences since the time of Hippocrates. Dr. Moorhouse went a step or rather a leap farther back into the dark and commenced his address with a consideration of that pre-Aaronic King-priest, who, with true Semitic shrewdness gave trivial gifts of bread and wine to an important personage, and then exacted a tithe of the booty the patriarch warrior had acquired in his one adventure of plunder. Without entering into the intrinsic difficulties of this isolated narrative of Pentateuchal history, one would like further evidence upon so high a matter as the ultimate origin of the profession.

However, that may be, as the College of Heralds says, when dealing with matters of remote ancestry, Dr. Moorhouse turned aside from his excursion into exegetics to read a homily to the Province of Quebec upon its stiff-neckedness in regard to the Dominion Registration Bill. We might remind him of that procedure enjoined in those same Oriental writings, which have obtained so wide a currency in Ontario, as being a proper preliminary to improving the vision of one's neighbours. Doubtless we in Quebec have our faults, but we do not apprehend the meaning of the very injurious terms which Dr. Moorhouse thought fit to apply to some of his confreres in Ontario. It is quite true we have our differences and difficulties here; in time we will clear them up, but it will not be by the method of joining with our friends in Ontario who are advised to rise in their "might and their right" to set Quebec at defiance.

It is quite true also that a large majority in this province adopt in their entirety the views advanced by Dr. Moorhouse; yet the president of such an association speaks ex cathedra, and he should speak for us in Quebec also, who are both English and French, in terms of

reticence and kindness. If we in Quebec, think that a complete course in classics and philosophy be a necessary introduction to the study of medicine; even if we consider that ability to read the dog Latin of the fathers constitutes a classical education, and an understanding of the patristic speculations of the schoolmen be proof of the philosophical mind, it is as well to acknowledge at once that we are within our rights in holding those views, however absurd they may seem. We hasten to add, that there are many in this province, including the editors of this Journal, to whom these things do seem as absurd as they appear to the profession in Ontario.

The meeting was enriched by the presence of many eminent men from the United States, who contributed largely to the interest of the proceedings. The Association will assemble in Vancouver next year, and if the British Medical Association accede to the request to meet in Toronto in 1905, the claims of Halifax will next be considered.

THE TORONTO FEDERATION.

The federation of Trinity university with the university of Toronto has led directly to the fusion of what was known as Trinity medical college with the medical faculty of the Provincial University. Trinity medical college was an independent corporation with a special charter, which was in operation till the beginning of this year, when the faculty became the medical faculty of Trinity unversity, whose corporation now holds the charter of the medical college. As Trinity university by the terms of federation will hold this charter in abeyance and, further, as the Provincial Government has become possessed of the charter of the old Toronto school of medicine, it is extremely unlikely that there will ever again be more than one medical teaching institution in Toronto.

The general basis of the fusion which is now accomplished is the incorporation, so far as possible, of the staff of Trinity in the Provincial university medical faculty; that is, the Trinity teachers in medicine, surgery, obstetrics, gynæcology, medical jurisprudence, and in the special subjects, ophthalmology, otology, laryngology, and rhinology, were given nearly corresponding positions in the new faculty, while the teachers in the primary subjects, anatomy and physiology. were transferred to various final subjects. Exceptions occur in the case of some demonstrators in anatomy, who are given annual appointments as such in the university, and of Prof. W. T. Stuart, who is given rank as associate professor of medical chemistry. Apart from this case the staff in the sciences and of the two primary years of the medical course is practically as it was in the previous university faculty.

In determining the relative rank to be accorded to the new appointments in any one department, length of service in Trinity, as compared with that of colleagues in the university faculty was a factor, but important exceptions obtained. In the university council, which consists of the head professors of all the departments in the university, there will be four former Trinity teachers and eleven of the original university medical faculty. Dr. Reeve will retain his rank as Dean, and Dr. Primrose will remain secretary of the medical faculty. Dr. Geikie had resigned from the Trinity university medical faculty before fusion was accomplished.

The didactic work of the reconstructed faculty will be carried on in the new university buildings recently erected, which will be formally opened on October 1st next. These buildings will provide laboratory accommodation for about seven hundred and fifty students working in the several departments at the same moment. The old buildings near the Hospital may be used for the purposes of the latter. The large staff in the final years will permit of a thorough subdivision of the work and at the same time permit of more individual teaching at the bedside. This division of the clinical work is necessary on account of the large number—over six hundred—of students who will be in attendance.

One of the terms of agreement demanded that the Provincial Government should endow six additional chairs, namely, those of anatomy, pharmacology, pathology, sanitary science, jurisprudence and preventive medicine. At present the chairs of anatomy and pathology are given a fixed annual remuneration out of the faculty income. The Government has not as yet signified its intention of accepting the proposition, but it is considered only a matter of a couple of years or so when Provincial support for all these chairs will be given. This large school is bound to be an important factor in medical education in Canada.

THE HYGIENE OF THE SLEEPING CAR.

Upon this last night of August, every sleeping in America is filled to the roof with families returning from the mountain and the sea, to resume their ordinary way of life, the mothers to take their place in the house and in the social order, the fathers to their business or profession and the children to school or college.

Between the seventh and the eighteenth of September, but for the most part on the fourteenth day, the family physician will be called upon to diagnose a case of coryza and a rapidly spreading eruption; in the second week it may be to a case of convulsive cough with a long drawn whooping inspiration, or a case of inflammation of the

parotid gland, or a case of eruption of vesicles on the skin. Unfortunately the case may be one of a diffuse exanthem with an angina of variable intensity. The physician will say at once, that he is dealing with measles, whooping cough, mumps, chickenpox or scarlet fever and that the diseases were probably contracted in the sleeping car.

Those in Montreal, whose memories go back to the year 1885, will call to mind what Osler describes as the most remarkable instance in modern times of the rapid extension of smallpox. The disease was brought by a Pullman car conductor from Chicago on the 28th February and before it exhausted itself 3,164 persons had died.

Railway travelling has come to be one of the ordinary incidents of life; it is not expecting too much that it should be deprived of its most obvious disadvantages. Johnson made the observation that a ship is worse than a jail, because in prison there is no danger of being drowned; but in a railway car there is a chance of being injured by collision, drowned in a river or contracting some contagious disease.

The report of the Interstate Commerce Commission on railroad accidents in the United States for the three months, ending March 31, last, shows that during that quarter 300 persons were killed, and 2,834 injured in train accidents. Other kinds of accidents, including those sustained by employees at work, and by passengers in getting on and off the cars, make the aggregate casualties 827 killed and 11,481 injured. One might endure all this liability, to disaster with calmness, if it were not for the inconveniences that haunt a crowded sleeping car.

In the presence of these real dangers it may appear a trivial affair to mention the lesser matters of cinders and impure air. Each adult requires 1,000 cubic feet of fresh air per hour; in a lower berth he probably does not obtain as much the whole night through. According to the *Lancet* numerous investigations have shown that the air in railway cars is often very impure, 14 parts of carbonic acid per 10,000, instead of the normal four having been observed, and of a train from St. Petersburg to Moscow, it is recorded that carbonic acid amounting to 94 parts per 10,000 was found. As the result of some experiments Wolffhugel concluded that the air of a compartment ought to be renewed 38 times per hour. In England the ventilation is helped by the rickety construction of the windows, and the simple expedient of frequently opening the doors. In France many of the trains are ventilated by tubes through which the air is forced and purified by passing through water, and in Germany the complicated but inefficient Schmidt's apparatus affords some fancied security at least against suffocation. In this country the ventilation depends upon the initiative of the porter,

who is usually an excellent individual but with very rudimentary notions of hygiene.

The law in regard to the carriage of persons affected with contagious diseases upon railways is perfectly clear. The matter is dealt with by the regulations of the Provincial Board of Health who are authorized by the Act, R. S. Q., 3054, et seq., to issue whatever regulations they may deem advisable, the only requirement being that they shall be approved by the Lieutenant-Governor in Council and published in the official gazette. In virtue of this power they have issued such regulations and by Section 7, no person affected with contagious disease shall be removed from one place to another without the special permission of the Board of Health. The owner of the vehicle used for the transfer of such a patient is obliged to disinfect it according to the manner prescribed, and his recourse is against the patient.

The disinfection of a sleeping car is not an impossibility. The public would willingly pay an increased price for transportation, if they had some security that travelling was not necessarily associated with infection.

THE OPENING SESSION.

The university which draws its students from the widest fields is the one that succeeds best. A university which raises its fees unduly cuts off that part of its field which is the most fruitful, the part occupied by young men of industry and inventiveness. The history of all large universities is one of increasing fees and enlarged demands upon its students, and no matter how high they be raised, the number of students will not diminish. With the increasing wealth of a new country, more men will be found willing to undergo a university course with all its advantages, but the standard of numbers is a false measure, if the undergraduates are not drawn from all walks of life. If the number of students of ample means be diminished, that would be a calamity against which a university might successfully struggle, but if men of self-reliance are wanting, the institution has already within it an element of weakness. The great American universities are beginning to suffer from this malady. Of the last twelve presidents of the United States, ten have been graduates of the smaller and cheaper colleges, and graduation from Yale, Harvard or Princeton has come to mean rather a social than scholastic distinction.

The main advantage of a college course is that it affords presumptive evidence of a man's capacity, and as Dr. Buller pointed out in his Convocation address, a presumption is far removed from a probability and

still further from a certainty. The degree of probability is so low in any case, that it is coming to be a matter of increasing indifference from what college a man graduates. This is peculiarly true of the faculties which have to do with the practical affairs of life, such as engineering and law; it is not so applicable to those bodies which are more professional and academic in their functions, and have to do with medicine and pure science. The Medical Faculty is a class or caste, and in some sense a hierarchy, and admission must be sought by the broadest way. That is why the schools that are most exclusive in respect of entrance and most difficult by reason of costliness afford to the young man the readiest success. But that state of affairs will not endure forever. The condition is largely artificial and any school that of design makes itself exclusive, will in the end, have no other distinction. The wealth of a nation is in its sons; that is why continued emigration will reduce it to such a condition of poverty as it witnessed in parts of Ireland and the Midland Counties of England. The wealth of a university is in its teachers and in its students, and if any—teachers or students—are allowed to depart, or are driven out, if it is not refreshed with new blood, it will fall into premature decrepitude. The principle of seniority will destroy any institution. These are not cryptic sayings. At the opening of another session it becomes all medical schools to see to it, that they are not content with being exclusive on the one hand, or on the other hand cheap and easy of access and for graduation.

The examination for admission to the study of medicine before the Provincial Medical Board of the College of Physicians and Surgeons of the Province of Quebec, will begin on Thursday, the 24th of September next at 9 o'clock a.m., in the city of Quebec, at the rooms of the Laval University. The semi-annual meeting of the board will be held on Wednesday, the 30th September next, at 10 o'clock, at Quebec. The credentials committee will meet on Tuesday, the 29th September, at 9 o'clock a.m., and the examination committee for the license will sit on Tuesday, the 29th September next, at 9 o'clock a.m., at Quebec.

Reviews and Notices of Books.

ORGANIC NERVOUS DISEASES. By M. ALLEN STARR, M.D., Ph.D., LL.D. Professor of Diseases of the Mind and Nervous System, College of Physicians and Surgeons, The Medical Department of Columbia University, New York. Lea Brothers & Co., New York and Philadelphia, 1903.

So numerous and so important have been the recent additions of knowledge to the various departments of neurology that all text books written even five years ago are already old, much of the knowledge acquired by the investigators of the past ten years is contained in articles published from time to time by clinicians—both physicians and surgeons, pathologists and physiologists.

An experience of twenty years has placed Professor Starr not only in possession of a "mass of pathological and clinical material" well "worthy of analytical study," but has given him the capacity to successfully analyze not only his own experiences but those of others as recorded in the literature of neurology. How admirably the sifting process has been done; how numerous the collated facts; how carefully the various theories have been considered, appear only after a perusal of the work which bears the marks of rich clinical experience—of careful pathological study, and of due appreciation of the work done by others. The author, we think, may be congratulated on having accomplished his object—viz.: "to make clear both to students and to practitioners the principles upon which localization and diagnosis of nervous diseases rest, and to put before them in a definite manner the appropriate medical and surgical treatment and its results." The work, which is comprised in a book of 750 pages, opens with a chapter on the structure of the nervous system amply illustrated.

Chapters II. and IX. inclusive, deal with the various diseased conditions of the nerves. In discussing the pathology of neuralgia it is stated that the more important lesions appear to be in the neurone bodies which lie in the ganglia; after weighing much evidence recently acquired, this part of the subject is dismissed with the statement that "it is therefore probable that neuralgia has, in every *chronic* case, some organic lesion." The strychnine treatment of trigemnial neuralgia is practically condemned; while aconitene, gelsemium and morphine are warmly recommended.

Dr. Starr has nothing to say in favour of fixation of the limb in cases of sciatica. Those chapters dealing with toxic forms of multiple neuritis are interesting from every standpoint, but we desire to

mention that the historical notes are very valuable, if for no other reason than the references afforded.

Spinal Cord diseases are taken up in the next chapters X. to XXIII. inclusive. This section of the book includes a chapter on muscular dystrophies, under which Thomsen's disease is classified and described. The balance of the work is devoted to diseases of the brain and membranes; diseases of the cranial nerves; general diseases of the nervous system, and syphilis of the nervous system.

The introductory chapter in each of these sections is a study of the symptoms occurring in diseases of the spinal cord and in diseases of the brain, with "an attempt to trace each symptom to its anatomical basis so that its significance as an index of the pathological state present may be clear."

The volume is illustrated in an admirable manner with coloured plates, diagrams and photographs—while cases, briefly set forth, illustrating the conditions discussed, add interest to the text.

An extensive bibliography is distributed throughout the book, the author choosing to place the reference at the foot of the page on which the quotation or reference is made. *W. F. H.*

THE DIAGNOSIS OF DISEASES OF WOMEN, a treatise for students and practitioners, by PALMER FINDLEY, B.S., M.D., Instructor in Obstetrics and Gynæcology, Rush Medical College; Assistant Attending Gynæcologist to the Presbyterian Hospital, Chicago. Illustrated with 210 engravings and 45 plates. Lea Brothers & Co., Philadelphia and New York, 1903.

The book, is well printed, as all Messrs. Lea's publications are, and is adorned with a profuseness of illustration which must prove alluring to the student and general practitioner for whom the work is more especially prepared. It is to be regretted that the title, "Diagnosis of Diseases of Women," should be employed as the greater part of the four hundred and seventy-five pages deals with etiology, anatomy, classification and gross and microscopic pathology, all of which are entered into with extreme minuteness and prolixity, while clinical and differential diagnosis are handled briefly and unsatisfactorily.

The work is divided into three parts. Part I. is devoted to general diagnosis and includes history taking physical examination, gynæcological instruments and microscopic examination. This section is divided into numerous short chapters on such subjects as the speculum, the vulsella, percussion, auscultation and menstruation, etc., such chapters consisting of several pages of illustrations and but a few paragraphs of text.

Part II. comprises Special Diagnosis, beginning with the diagnosis of Pregnancy, which the author enters into carefully and at some length; then follow chapters on ectopic pregnancy, hydatiform mole and chorio-epithelioma maligna. The arrangement of the rest of this part is on anatomical and pathological lines as distinguished from clinical, and while not well adapted for diagnostic purposes, conduces to unnecessary and tiresome repetition.

Part III. consists of a brief survey of diseases of the urinary system, and is largely a resumè of Howard Kelly's cystoscopic methods. Having failed to find the work original or well arranged or particularly useful from a clinical standpoint, it would be pleasant to commend it for facility of expression, lucidity or attractiveness of style, and for correct English. On the contrary, making due allowance for mistakes in proper names and other defects, it is regrettable to find in a scientific manual, repeated faults of grammar and composition combined with obscurity of expression and repetition.

International Clinics. A Quarterly of Illustrated Clinical Lectures and Original Articles. Edited by A. O. J. Kelly. Vol. II., thirteenth series, 1903. J. B. Lippincott Company, Philadelphia, 1903.

It is only necessary to enumerate the contents and mention the authors of this volume to convey some idea of its value. The Summer Diarrhœas of Children: Milk bacteria and intestinal disorders, by H. W. Conn; The causation, nature and prevention of the summer diarrhœas of children, by Alfred Hand, Jr.; The symptomatology of the summer diarrhœas of children, by A. C. Cotton; The treatment of the summer diarrhœas of children, by Matthias Nicoll, Jr.; The treatment of cholera infantum, by A. B. Martin; The dietetic treatment of the summer diarrhœas of children, by Thompson S. Westcott. Disease of the pancreas: The symptoms and treatment of disease of the pancreas, by Eugene L. Opie; The diagnosis and surgical treatment of disease of the pancreas, by John B. Deaver and George P. Muller. Treatment: Trunecek's serum in arterio-sclerosis, by Leopold Levi; Practial notes on the prophylactic and curative treatment of influenza, malaria, erysipelas and ozena, by J. McFadden Gaston; A recent advance in therapeutics, local treatment by Charles Bouchard; The rest treatment when indicated and how conducted, by John Madison Taylor. Medicine: The etiology, prevention and treatment of a common cold, by Alexander Haig: Peripheral causes of heart disease, by Louis Faugeres Bishop; Endocarditis in childhood considered as a symptom of infective diseases, by F. J. Poynton; The etiology and diagnosis valvular affections of the heart, by Thomas E. Satterthwaite. Surgery: The diagnosis and treat-

ment of hæmorrhoids, by George W. Gay; Abdomino-pelvic diagnosis—abdominal swellings, by E. Stanmore Bishop; The surgical relief of traumatic epilepsy, by D. B. Roncali. Pediatrics: Cirrhosis of the liver in children, with notes on three cases, by W. F. Hamilton. Obstetrics and Gynæcology: The causation and treatment of sterility in women, by J. Riddle Goffe; Ectopic gestation, with notes on a case of tubal mole, by Cuthbert Lockyer; The significance and some suggestions regarding the treatment of cervical lacerations, by Chauncey D. Palmer. Ophthalmology: Surgical intervention in paralysis of the ocular muscles, by Professor Edmund Landolt.

First Principles of Otology. A text book for medical students. By Albert H. Buck, M.D., Clinical Professor of the Diseases of the Ear, College of Physicians, Medical Department of Columbia University, New York, Consulting Aural Surgeon New York Eye and Ear Infirmary and The Presbyterian Hospital. Second edition. Revised Octavo, 209 pages, profusely illustrated. New York: William Wood & Co., 1903.

This little work, written primarily for the undergraduates of Columbia University, will, undoubtedly, prove helpful to medical students in general. The various phases of otology are taken up for the most part in the usual sequence, but the author adheres closely to the discussion of the broad facts underlying ear diseases, and leaves the minutiæ to the larger text books and clinics.

There is a great deal in the saying that it might be well for the teachers of greatest experience, capable as they are of viewing their work broadly, to instruct men in general principles at the commencement of their study of a subject, leaving the detail work for the senior men, who are more burdened with facts than with experience. Dr. Buck has apparently proceeded along these lines. The book in question is the successful effort of a teacher of experience to present to the student the principles rather than the facts of otology, and it can be warmly recommended to beginners in ear work for its comprehensiveness and simplicity.

W. G. M. B.

A System of Physiologic Therapentics. Edited by G. Solomon Solis Cohen, A.M., M.D.; Vol. VI. Dietotherapy and Food in Health by Nathan S. Davis, Jr., A.M., M.D. Philadelphia, P. Blakiston's Son & Co., 1902.

This system is an exposition of the methods other than the administering of drugs, which are useful in the treatment of disease and the

present volume deals with food in health and in disease. The author has made a practical book upon dietetics; he has considered the chemical and physiological data connected with the various foods and the changes necessary to render them available for the uses of the organism, in so far as these are known. A large mass of literature has grown up in recent years dealing with these and cognate subjects and this has been made good use of, especially the researches of Professor Atwater. There is a large section dealing with the diet for invalids and the digestive and nutritional processes as modified by abnormal conditions. The book is a compendium of all that is known about foods and food values and enters very fully into matters that are yet under discussion. The section dealing with alcohol is moderate and just, as the author does not side with those who regard alcohol as an indispensable food, nor with those who would restrict a man to a diet of acorns and water. The dietary of invalids is based upon all the facts of which we are possessed, and is entirely to be trusted. The book, and the whole series in fact, is necessary for all who apprehend the fact, that the greater part of the treatment of disease lies outside the giving of medicines.

Portfolio of Dermochromes, Parts I. and II. By Professor Jacobi, of Freiburg. English adaptation of text, by J. J. Pringle, M.B., F.R.C.P. London: Rebman, Limited, 1903. Canadian Agent: C. E. Wingate, Toronto.

The process employed in these illustrations of the diseases of the skin is that designed by Dr. Albert, of Munich. Most of the figures were executed by Herr Kroner in the Breslau Clinic and done under the care of Professor Jacobi. It would be hard to imagine anything more beautiful and at the same time so faithful as these illustrations of the common diseases of the skin. For artistic excellence and illustrative quality they have probably never been surpassed. Taken in conjunction with the letter press the book constitutes an almost infallible guide to the diagnosis of the conditions dealt with. The text contains a clear description of the various diseases, their etiology, the differential diagnosis, prognosis and treatment. The book will delight skin specialists and the general practitioner.

Atlas of Illustrations of Clinical Medicine, Surgery and Pathology, compiled for the new Sydenham Society. H. R. Lewis, agent, London.

Three more fasciculi of the splendid publication of the New Sydenham Society are at hand. Number XIV. being a double fasciculus, includes a consideration by Jonathan Hutchinson of Frambœsial

syphilis, commonly known as Yaws. Number XV. deals with Xanthelasma and Xanthoma, with especial reference to their association with functional and organic diseases of the liver, and is compiled by Mr. Hutchinson. Number XVI. is upon Coxa Vara and miscellaneous conditions somewhat allied with it. The plates are incredibly beautiful and done in the highest style of the art of illustration. The volume on Yaws revives the old contention as to the identity of yaws with syphilis, but whichever view he adopted, the plates are of equal value, in the one case illustrating a disease new to the atlases, and in the other showing the modifications in syphilis which are common chiefly in the coloured races. It is Mr. Hutchinson's view that they are identical, and certainly these plates lend confirmation to it. No descripion would serve to convey an idea of the beauty of the drawings nor of the fitness with which the letterpress is done. The subscription to this society is only one guinea, and includes amongst other privileges the securing of one set composed of a varied number of volumes.

High Frequency Currents in the Treatment of Disease, by Chisholm Williams, F.R.C.S., Edin.; London, Rebman, Limited, 1903; Canadian Agent: Charles E. Wingate, Toronto.

The author of this book is evidently an enthusiastic worker with electricity and it is just as evident that he has allowed his enthusiasm to transcend the limits of sound sense. An investigator, who finds the results of electrical treatment "most satisfactory in each case of diabetes," who is "unable to find any reports of failure in gout." who observes the "greatest benefits" in rheumatism, "remarkable results" in obesity, "most excellent results" in colitis, and notes its employment in hysteria, anæmia, phthisis, dyspepsia, and dilatation of the stomach, requires to have his experiments supervised. High frequency currents, he affirms may be used to advantage in fissure of the anus, prolapse of the rectum, warts and hæmorrhoids; but that is a matter, which some will think is open to discussion. The book contains mistakes as to facts and errors in expression; "having to lay on a couch"——. It is worth reproducing the word D'arsonvalization to show how it looks in print.

Index. Catalogue of the Library of the Surgeon-General's Office, United States Army. Second Series: Insane to Kysthospitalet, 1903.

This is the eighth volume of the second series of the Index-Catalogue of the Library of the Surgeon-General's Office of the United States Army. It includes 10,704 author-titles, representing 5,330 volumes, 9,897 pamphlets, 5,731 subject titles, and 29,684 titles of articles in

periodicals. Up to date the catalogue contains 258,525 author notes, and 758,663 titles of journal articles. The Index-Catalogue continues to be the most authentic thing of the kind in the English language and indispensable to all who write upon medical subjects.

BOOKS RECEIVED.

The Practical Medicine Series of Year Books: Gustavus P. Head, M.D. Vol. VI. General Medicine: Frank Billings, M.S., M.D., and J. H. Salisbury, M.D., May, 1903. Vol. VII., Pediatrics: Isaac Abt, M.D. Orthopedic Surgey: John Ridlon, A.M., M.D., June, 1903. The Year Book Publishers, Chicago.

Medical News.

CANADIAN MEDICAL ASSOCIATION.

The thirty-sixth annual meeting of the Canadian Medical Association was held in London, Ontario, on the 25th, 26th, 27th and 28th August, 1903. The president, Dr. W. H. Moorhouse, of London, presided, and the members, to the number of 271, registered their attendance :—

TUESDAY MORNING—25th AUGUST.

The general meeting opened at 10 a.m., with the usual routine business, the reading of minutes, the Secretary's report, the proposal of new members, notices of motion and general business.

Dr. James Newell, of Watford, read a paper upon the surgical treatment of hallux valgus and bunions. He advocated laying open the joint, amputation of the head of the metatarsal bone and excision of the exostosis. A sheet iron splint was to be applied to the foot and toe, with adduction of the great toe, and passive movements begun in from two to three weeks. He claimed permanent relief, but absolute asepsis must be obtained.

Dr. A. Lapthorn Smith, of Montreal, who was to have read a paper, did not appear.

Dr. R. Ferguson, of London, read a paper upon inguinal hernia of the undeveloped uterus and appendages, and presented the specimens.

He gave the preliminary history of the case, a woman 32 years old, married 6 years, who suffered from severe pain, referable to the generative apparatus. The hernia had been present since she was 7 years old and on examination a disordered condition of the internal organs of generation was observed. At the operation Dr. Ferguson found in the

sac an adherent ovary, an imperfectly developed uterus and a cystic body. He ligated the mass and excised it leaving a stump to retract into the pelvic cavity. The recovery was without interruption. Dr. Ferguson expressed the opinion that the case was one of congenital inguinal hernia of the left ovary, subsequently involving the remaining structures. In conclusion he discussed the literature of the subject and congenital anomalies in general, calling especial attention to the cessation of the neurological manifestations, when the local condition was remedied.

A paper upon the radical cure of hernia by Dr. A. Groves, of Fergus, was not read, but the following is an abstract: He claimed that about 20 per cent. of the population was afflicted with hernia, and that the usual treatment was the unsatisfactory one of wearing a truss. He discussed the anatomical conditions which lead to the protrusion laying emphasis upon the fascial rather than upon the muscular tissue. He explained that his own method was to restore the continuity of each layer of the abdominal wall taking special pains with the fascia, suturing muscular tissues which are normally continuous, so that structures are not brought edge to edge which were not intended by nature to be so. He advised opening the canal widely, restoring to the abdominal cavity everything belonging to it; if the sac could not be easily freed, he would ligate cut off and drop it back, and close the wound layer by layer, using only sutures which are absorbable or removable when their work was done. He insisted upon cleanliness, rather than upon antiseptics; he quoted statistics, and considered two per cent. a proper estimate of failure. In conclusion, he enumerated cases to bear out his contentions.

Dr. Perry Goldsmith, of Belleville, read a paper upon the causes and treatment of post nasal discharge. He was induced to present the paper because of the frequency of the complaint, and the somewhat indifferent treatment usually adopted, which was commonly douching the nose with hot water, burning the mucous membrane and spraying with oil.

The paper was divided into three parts, that dealing with the causes situated in the nose, the cause situated in the pharynx and oro-pharynx, and systemic defects. After enumerating the various causes, he described in detail those that he had found most common, for example septum deviation, hypertrophy of the turbinated bone, and accessory sinus disease.

He condemned the indiscriminate operations on all septum irregularities, and advocated operations on the septum when it either interfered with nasal drainage or where it was the cause of rhinitis or nasal pharyngitis. The indiscriminate use of the galvano-cautery was pro-

ductive of no small amount of harm and was too frequently employed. Chromic acid was preferred and only small amounts carefully applied were allowable.

The cause situated in the naso pharnyx, whether in young children or adults, usually was adeonids; with those causes due to an alternation in the glandular activity, apart from any hypertrophy, were usually associated gastro-intestinal disturbance; massage and measures directed to that condition were valuable adjuncts to various applications, such as iodine, silver nitrate and protargol. In purely neurotic cases, topical applications were not advised, since they tended to fix the patient's mind more strongly on the complaint.

TUESDAY AFTERNOON.

The address in medicine was given by Dr. H. A. McCallum, of London, who undertook to replace Dr. James Stewart, of Montreal, who was absent on account of his illness.

Dr. McCallum chose for his subject the lymph circulation in modern medicine. He said it might be pointed out that the lymph circulation during the last twelve years, had assumed enormous importance in the physiological world. Twelve years ago, Heidenhein set to work with certain agents to determine their affect on the amount and character of the lymph coming from the thoracic duct and was able by certain of those agents to alter the quantity and concentration of the lymph. Based upon his experimental evidence, he formed the theory that the endothelial cells of the capillary wall acted as a secretory filter. Since that time all physiologists were attempting to confirm or disprove his theory. A considerable number of physiologists from physiological evidence alone have arrived at a separate conclusion, that lymph depends upon the activity of the tissues. As an illustration, a limb in perfect repose gave no lymph from the lymph ducts, but massage, active or passive movement were immediately followed by a free flow. The quiescent animal, it was agreed, gave lymph from the thoracic duct almost wholly obtained from the viscera.

In order to arrive at a clear comprehension, the modern anatomy of the lymphatics should be considered. Ranvier, Sala, McCallum and Sabine had separately agreed that the lymphatic system was a modified portion of the circulatory system, that it grew backward from the subclavian vein by the process of budding, gradually invading the tissues, that the ends of the lymphatics were blind like the lacteal and intestineal glands, that they had no physical connection with the tissue spaces, and that certain tissues, like the cartilage and the cornea of the eye, were not invaded by lymphatic capillaries.

Those anatomical findings at once threw confusion upon all theories of lymph circulation, for, by them lymph was a double circulation composed of the tissue juices and the lymphatic or absorbent circulation. Basing one's opinion upon all sources of biology, including evolution, physiological, pathological and clinical evidence, the lymphatic circulation was a thoroughly independent one. The part of the lymph was to get rid of offensive material and certain secretions, and to obtain in exchange from the blood nutritive material and oxygen.

The two great forces of the lymph circulation were glandular activity and the muscular system. The relation of the voluntary muscular system as a lymph pump was pointed out, placing the limbs so far as the lymph circulation was concerned wholly under the control of the will.

The involuntary muscular system and its universal distribution was then dealt with. The enormous amount of the involuntary muscular tissue due to its wide area was shown to exist in the skin; possibly half the muscular system of the body would be found to be in the skin.

The modern research on the relation of the skin to the internal viscera was pointed out, and the sympathetic pain reflected from the viscus could be palliated by a reflex act from the skin to the viscus. The lung reflex of Abraham was shown to be one of these.

The immense importance of the skin as a great external body connecting with all forms of impression was pointed out. If it had not been for the fact that impressions could waken up all the laboratories of the body they could not have a heat-regulating mechanism. The application of cold and heat, and sunshine and fresh air were the primal forces of the universe, and they all acted on the external body and would continue so to act for all time.

They had staggered accidentally upon the use of those forces in the treatment of phthisis, the cold bath treatment of typhoid fever, and the massage treatment of malnutrition. If the skin could waken up so much activity inside, what could be said of the great master tissue, the central nervous system in its influence over the vital activity in the functions of the body. They had not used that force sufficiently in the treatment of disease, in the way of training the patient to sane courage, to cease complaining, to minimize his sufferings and to alternate periods of alertness with absolute repose.

The importance of this circulation in the solution of the unsolved problems of the medical world was pointed out, its ancient character, and its important relation with the physiology of the cells. It gave a wide therapeutic application without drugs, and was a field of inquiry that would be enriched by future growth.

The meeting then divided into two sections, medical and surgical.

MEDICAL SECTION.

Dr. George Hodge, of London, presented two cases of disseminated lateral sclerosis, the one in a woman, the other in a man of 22 years of age, who had had the disease for five years; in the latter there was some suggestion of primary lateral sclerosis.

Dr. W. P. Caven, of Toronto, introduced a discussion upon the treatment of typhoid fever. He laid stress upon diet, and assigned to milk the first place, though he would not employ it to the exclusion of broths, extracts and gelatine, when these were indicated. He remarked the possibility of conferring an artificial immunity, after the manner devised by Wright of Netley, and quoted statistics from the experience in South Africa as establishing its value. He considered next the value of hydrotherapy and described in detail Brand's method and the other methods of applying cold which were commonly employed. He laid stress upon intestinal antiseptics and the ingestion of water, but would recommend no specific medication save in the case of hæmorrhage, where he thought favourably of adrenalin, and of turpentine and asafœtida in tympanites.

In continuing the discussion, Dr. J. Herald, of Kingston, insisted upon an appreciation of the facts of pathology in typhoid. They could not remove nor destroy the cause of offence, but they could control its effects upon the system, guiding the case, if not curing it. He placed diet and nursing first in importance, and was inclined to a rather liberal use of suitable foods. He found the best results from the use of cold water, but thought he had observed increased excitement after the ice bath. He advised sponging the patient with alcohol and then dissipating the heat with a fan. The best they could expect from drugs was control of symptoms, but he would avoid alcohol till the tongue had become dry, till the mind wandered and the heart began to fail. For hæmorrhage he advised rest through morphia and cold to the abdomen, though the latter measure he thought of doubtful value.

Dr. W. B. Thistle, of Toronto, who was to continue the discussion, was not present.

Dr. H. A. McCallum, recommended the use of strychnine from the beginning on physiological grounds.

Dr. E. Hornibrook, of Cherokee, Iowa, read a paper upon the toxic element in appendicitis having changed his subject from auto-intoxication. He contrasted the state of knowledge, as it was, before and after the discovery of the specific element of infections, but made a plea that the knowledge which had been accumulating for ages should not be too lightly regarded. He dwelt upon the importance of the elimina-

tory organs, kidneys, liver, skin and intestines, and considered in short that a toxic condition of the intestinal tract was a large factor in the production of appendicitis. He quoted the authority of Treves and Bouchard, in support of his view and gave illustrations to show that the condition followed the ingestion of tainted meat and contact with putrifying bodies. He thought the element of toxæmia accounted for the grave results following a case that was apparently mild, and the recovery of cases which had gone on to abscess. From this he reasoned in favour of the starvation treatment, of opium, and of the eliminatory treatment with salines and a proprietary preparation which he mentioned. In conclusion, he said appendicitis was neither a medical nor a surgical disease, it was sometimes one and sometimes another, and should be treated accordingly.

Dr. Dewitt in discussion of the paper, favoured medical treatment rather than surgical and recited his experience with calomel, and boracic acid injections.

Dr. J. Duncan, of Toronto, presented a paper upon the size of the pupil as an aid to diagnosis. He recorded the conditions in which changes are observed and then proceeded to interpret them. After dealing with the anatomy of the eye he divided the changes into several classes, the evenly contracted, the evenly dilated, the unequal pupils, the uneven and movable, the uneven and fixed. He discussed at length the significance of these departures from the normal with especial reference to locomotor ataxia.

Dr. Jennie Drennan, of St. Thomas, read a paper upon the physiological generative cycle in woman. The subject was closely reasoned, and many of the observations profound, so that the paper does not readily lend itself to abstraction. After tracing the connection between function and environment and the influence of heredity in the process of evolution, Dr. Drennan explained the normal cycle of impregnation, pregnancy and lactation, which she termed the normal cycle, and menstruation as a subsidiary and abnormal cycle brought about by the hyper development of the sexual side of the nature. Incidentally she advanced the view that fecundation occurred most commonly between the twelfth and fifteenth day of the intermenstrual period.

The next paper was to have been upon the subject of the decline and fall of atropine, but the reader, Dr. G. Stirling Ryerson, of Toronto, was not present.

Dr. John Hunter, of Toronto, read a paper upon the medical treatment of diseases of the nose and throat. The functions of that portion of the respiratory tract were referred to, including the respiratory and vocal functions. A general statement was made, referring to the

condition of the body, and maintenance of good health, the influence that any other disease of the body would have upon any disease of the nose and throat, and the local treatment consisting of thorough cleansing of the secretions. Several methods were mentioned; amongst others the nasal douche in which great care must be exercised, that the return current be not obstructed lest infectious material be carried into the middle ear, and violent ear trouble set up. Special reference was made to the irrigation tube which consisted of a hard rubber catheter closed at the end with numerous perforations in the circumference. The tube was introduced into the nostril and attached to a syringe. Reference was made to the spray and the medicated vapor and special reference was made to the patient's returning regularly to the physician's office, that after the cleansing process the vestibule should be dilated with a nasal speculum, and by means of a head mirror the nasal chambers illuminated, and with a probe the tissues might be examined, and a stronger application applied to the diseased portions.

The mucous membrane must be cleansed from crust, and stimulating applications applied. In syphilitic lesions the surfaces were cleansed and brushed with a strong solution of iodine. In tertiary syphilis strict attention must be paid to constitutional treatment, iodine of potassium in doses of twenty to a hundred and twenty grains in a tumbler of water, one hour after each meal until physiological tolerance was reached.

SURGICAL SECTION.

The surgical section was to have been opened by a discussion upon the diagnosis and treatment of tuberculosis peritonitis, by Dr. A. B. Atherton, of Fredericton; Dr. H. A. Bruce, of Toronto; Dr. A. Groves, of Fergus, and L. C. Prevost, of Ottawa, but for some reason which did not transpire openly, it was removed from the programme.

Dr. Hadley Williams, of London, showed a case of gunshot wound of the upper arm, with non-union of humerus, and destruction of the musculo-spinal nerve, with result of operation six months later, and recovery. The case was much commented upon.

Total ablation by bissecting the uterus, was to have been discussed by Dr. T. Shaw Webster, of Toronto, and orthopœdic surgery at the present time by Dr. C. W. Wilson, of Montreal, but neither of these gentlemen put in an appearance.

Dr. F. N. G. Starr, of Toronto, was also down for a paper upon the open method of treating fractures, but he too was not present.

Dr. Henry Howitt gave a report of two cases of hour glass contraction of the stomach.

The paper contained a list of twenty-five operations on the stomach, many of which were done in desperate condition of the patients. Two deaths occurred, one, accidental five days after operation and the other owing to the lateness in operating. Of the hour-glass stomach cases, which were reported in full, one was complicated by an ulcer on the posterior wall of the stomach and the other by cancer. The former had a history of gastric distress of thirteen years duration. After the operation the patient made a complete recovery and gained fifty pounds in weight. The other case, an old man 73 years of age, recovered and lived for nearly a year in comparative comfort, being able to take solid food until a short time before his death. In this case the constriction was such that nothing could pass through it to the plyloric pouch. Both had had a history of gastric ulcer.

Dr. J. Alex. Hutchison, presented a paper upon perforation of the bowel in typhoid fever. Dr. Hutchison gave the important symptoms of five cases of typhoid perforation operated upon during the last seven years, the first four of which resulted fatally, the fifth done within the last nine months being successful. The early cases were only operated upon after well marked symptoms of general peritonitis had developed. In the last case the perforation was recognized promptly and the operation done within two hours, before any important inflammatory change had developed in the peritoneal cavity.

The technique was much the same in the whole series, the early cases being done by the median incision, the latter cases by the right inguinal incision. The latter method permitted the rapid exposure of the field, and the early completion of the operation, thus lessening the degree of shock. In addition, after the abdomen was closed the cavity was filled with saline solution through a drainage tube, the tube then being clamped, so that a large quantity of fluid was retained within the abdomen. Dr. Hutchison referred to the opion expressed by Dr. Osler and Dr. Cushing, that fifty per cent. of the cases occurring in the hospital should be saved.

TUESDAY EVENING.

Dr. R. H. Moorhouse, London, then read his presidential address. He conveyed his appreciation of the honour that had been conferred upon him, and welcomed the members to London. He emphasized the advantages of meeting together as tending towards harmony and an appreciation of duties and mutual obligations, towards a higher state of scientific efficiency and the resisting of aggression from without.

He then traced the ancestry of the profession to that King-priest of Salem referred to in Oriental literature and followed it through the

Hellenic period, drawing examples from the Homeric and other early writings. He described its condition in the early days in Canada and insisted upon a high standard of professional and personal culture to meet the advancing needs of a growing country.

The President took up the matter of Dominion Registration, and recited the facts, how several provinces had accepted its terms, how Ontario had allowed the matter to stand over, an account of the Premier's "unstable tenure of office, and the very grave charges brought against some members of his cabinet," and he urged the other provinces to rise in their "might and their right "to resist the "selfish policy of Quebec," by endorsing an amendment permitting a majority of the provinces to put the Bill into operation.

Dr. Moorhouse then dealt with medical literature and hospital equipment, urging the profession to greater efforts in writing, and a fuller use of hospital facilities.

He discussed at some length the evils attendant upon the use of patent medicines and proprietary preparations, composed as they largely were of alcohol and narcotics. He insisted upon the credulity of the public and the dishonest propagation of laudatory testimonials, and upon the liability to encouraging secret vices by their employment. In conclusion, he considered the duty of the practitioner to himself, the necessity for rest and relaxation, for availing himself of all legitimate amusements, for justice to himself in financial matters, and for keeping himself informed of the best that is being done and said in medicine.

Dr. G. M. Gould, presented a paper upon the role of eye-strain in civilization and medicine, a subject which he has made peculiarly his own. He epitomized the clinical symptoms and lessons of eleven patients, whose cases he has studied,—DeQuincy, Carlyle, Darwin, Huxley, Browning, Mrs. Caryle, Wagner, Herbert Spencer, Whittier, Parkman, and Nietsche. The common symptoms were in varying degrees, headache, insomnia, sick headache, biliousness, dyspepsia, indescribable suffering; there was inability to do literary work without producing these symptoms, and relief of these symptoms when use of the eyes was desisted from, for a day, or even a few hours. There was relief of all the symtoms at about sixty years of age, i.e., with the full establishment of presbyopia. This is a definite symptom—complex and clinical picture which differentiates the fundamental pathologic condition from that of any other disease. Each one of the patients and their physicians were intensely conscious of the strange mystery of the disease, and all repeatedly showed by letters, etc., the causal relation of near eye work to the symptoms. Each found relief in a great deal of walking and physical exercise. Three fundamental

errors were made by their physicians, as well as themselves. 1. That the organ was diseased in which the symptoms appeared; 2. that intellectual labor caused these symptoms, when it was the optical part of it that did so; 3. that the "change of scene," and exercise gave the relief, when it was only the stopping the use of the eyes in reading and writing. The disease was functional; the loss in time and opportunity enormous; the resultant suffering terrible. The physiology of insomnia was set forth, and the way eye strain causes it; also the influence of it in creating dyspepsia, irritability and nervousness, or, sometimes, apathy and exhaustion. The ocular symptoms were described, when they existed, others direct and indirect, intercurrent diseases, etc. The fallacy of the explanations erroneously given of these patients' disease was sea forth, and the method in which eye strain does cause it, explained at length. The influence of their disease upon the character of their literary work was of peculiar interest to literary critics. The professional blunderer in diagnosis and treatment was not spared. The value to nations and to civilization of its great men and their work was strongly emphasized and how the neglect of the eye-strain factor is a most costly one to the world. "Its great men and writers are the most valuable asset of a nation," was Dr. Gould's conclusion.

Dr. J. H. Elliott, of Gravenhurst, gave an extremely interesting lecture, with lantern illustrations, on the open air treament of tuberculosis and Dr. E. J. Barrick, of Toronto, read a paper upon municipal sanataria for consumptives.

Dr. R. P. Robinson, of Ottawa, gave a paper upon operation in the hip joint without shortening, and showed skiagrams and photographs of the conditions before and after operation.

WEDNESDAY MORNING.

At 8.30, Dr. Ferguson, of Chicago, performed a thyroidectomy at the Victoria Hospital. Dr. McGraw, of Chicago, gave a demonstration of gastro-enterostomy, but neither of his two cases were considered suitable for complete operation and the wounds were closed.

MEDICAL SECTION.

Dr. J. S. Sprague, of Sterling, who was to have read a paper on the Country Doctor, was not present and the paper was presented by proxy. He described the early life and trials of a typical country doctor, his efforts to maintain himself, and the self-reliance he gained thereby. In practice he insisted upon the good relation which should prevail between the doctor and the clergyman, uniting liberality with faithfulness to tradition and sympathy with the spirit of the age.

The writer had words of censure for some consultants on the one hand and for fledgings on the other, and for the medical journals who are in the pay of pharmaceutical companies. He advised the members not to lose sight of the old remedies and ended with a peroration on the ancestry of the profession, in which he made a free use of poetical quotations. Dr. Mitchell discussed the question from the standpoint of a quarter of a century of country practice and enumerated amongst the ills they had to endure, lodge practice.

Dr. Meek, said that in his district the physicians had combined to resist the encroachments of the lodges.

Dr. Hunter, of Toronto, urged the country practitioner to ally himself with a political party, and to be a leader in politics as well as in other fields of activity.

MEDICAL SECTION.

Dr. Geo. F. Butler read a paper upon the inter-relation of diabetes and other constitutional states.

He referred in the outset to the error of fixing upon one condition as a test of disease rather than upon the general complex symptoms. In diabetes, glycosuria was merely an expression of metabolic instability dependent upon nerve disturbance. He then described the conditions affecting the nervous system, which might produce glycosuria, such as paretic dementia, locomotor ataxia and epilepsy, delirium tremens, the confusional insanities and febrile conditions. He then described in a very vivid manner the symptom complex of true diabetes, and insisted upon its central origin. In conclusion, he affirmed that most cases of diabetes were at first merely expressions of nutritional and assimilative instability; in consequence of the overstrain of the liver, adrenals, pancreas, spleen and kidneys, what were at first biochemic changes became permanent pathological lesions.

Sir James Grant complimented the writer of the paper and insisted upon the necessity of a fuller knowledge of the elaboration of sugar. Dr. Gould warned them against confusing a glycosuria with true diabetes and in strong words condemned the careless employment of advertised, non-farinaceous foods. Dr. Butler felt sure that the so-called health foods were productive of dyspepsia.

Dr. G. E. Armstrong had a paper upon the condition known as idiopathic peritonitis which was transferred to the surgical section. He recited a series of cases occurring in his experience, and others taken from the records of the Montreal General Hospital, in which the initial lesion could not be determined. In some cases the infective agent was the diplococcus of pneumonia, in others the staphylococcus, and he dis-

cussed the possible association of the condition with events occurring in the appendix, the fallopian tubes and uterus, in the lungs, the retro-peritonial tissue, intestines and in the blood stream. Finally he noted the occurrence of infection of the peritoneum after child-birth and gave the record of cases.

Dr. DeWitt, of Nova Scotia, read a paper upon fresh air versus disease, and claimed that if fresh air, acting through the circulation indirectly, checked and destroyed the bacilli of consumption, it would have the same effect on other disease germs. It was possible that most of the ailments, fevers, rheumatism and other diseases, had been treated too much in an environment where the temperature was kept at seventy or eighty degrees. He spoke of the germs of consumption flourishing in a heated atmosphere and doing their most deadly work in the system of the host, when the temperature was a few degrees above normal.

Dr. DeWitt cited several cases of rheumatism successfully treated in the fresh air. He said they must not lose sight of the fact that there was much difference between undue exposure and a judicious use of fresh air, and when they had lived so as to preserve and use it as nature designed, they would be better equipped to employ the most potent of all remedies.

Dr. Roseburgh, of Toronto, who was to have read a paper upon the treatment of inebriates, failed to appear, but supplied the following abstract :—

At the meeting of the Canadian Medical Association held in 1899, an economical scheme for the scientific treatment of indigent inebriates without the establishment of special public institutions, was, by resolution, endorsed by the Association. This economical plan of treatment was subsequently submitted to the Premier and Provincial Secretary of Ontario, and at their request a bill was drafted embodying the various features of the scheme proposed. The bill as drafted was submitted to the Government during the session of 1901. From whatever cause the bill has not as yet been introduced to the Legislature, notwithstanding that it is understood to have the approval of the Premier. The bill was drafted with a view to combining maximum efficiency with minimum expense. To this end, it is proposed to combine the Massachusetts probation system with medical treatment, either in cottage hospitals, special wards in general hospitals or in the form of home treatment in suitable cases. At the outset, a medical inspector will be required to inaugurate the system. For the purpose of stimulating local benevolence the bill provides that the Government shall contribute 33% of the expense involved both in the equipment for and the maintenance of inebriate cases.

The bill has been endorsed by the Ontario Medical Association, the

Toronto Medical Society, the Medical Press of Toronto, the Associated Charities of Toronto, as well as by a number of other influential public bodies. The Quarterly Journal of Inebriety gives the proposed bill its emphatic endorsation and adds "We are confident that this bill will lead all the world as a new economic movement to diminish the misery and crime which associate and follow alcoholic drinking. . . . . its success is simply a question of the men to carry out its provisions."

As the Canadian Medical Association has endorsed the underlying principle of the proposed bill and as the bill itself has been endorsed by the Ontario Medical Association and as the latter body has appointed a representative committee to promote its adoption, we ask that similar action be taken by the Canadian Medical Association and we also ask that every member of the medical profession who is in a position so to do, will kindly give the movement a helping hand.

The matter was referred to the Executive Committee.

Cardiac complications of influenza was Dr. E. G. Wood's subject. The frequency of the formidable and dangerous pulmonary complications in that disease was very marked, but it was not so well recognized that the heart often suffered serious danger from which it might never entirely recover. Only a want of recognition of the cardiac dangers in influenza could account for the common practice of administering such large and frequently repeated doses of the coal tar preparations, drugs which in a man of over forty are probably as dangerous in influenza as in pneumonia. Months after an attack of influenza a man would complain of unusual weakness, he was short winded and would sweat on slight exertion, his pulse rate was easily disturbed, and perhaps irregular. Physical examination revealed no sign of organic disease, yet he was suffering from cardiac weakness, either functional, in which case complete recovery was probable; or due to muscular change with a loss of cardiac power that might be permanent.

Influenza might be associated with organic change, or functional disturbances. Organic changes were attributed to the direct action of the influenza bacilli or their toxine upon the heart. These changes were, pericarditis, endocarditis, simple or malignant, or myocarditis. The two former were comparatively rare; the inflammatory condition might be primary, but was usually secondary to influenza, pneumonia or pleurisy. Hence the cardiac affection was not unfrequently latent even in fatal cases.

Toxic myocardiac degenerations in varying degrees of intensity were common in influenza and were responsible for the prevalent cardiac weakness. Cases in point were cited.

The bacillus of influenza, he said, elaborated a poison, which when

circulated in the blood in sufficient quantities acted as a powerful heart depressant by the constant irritation of the poison upon the tissue. So long as those patients remained in bed they might suffer from their influenza symptoms only, but as soon as the patient arose, the heart muscle, enfeebled by the action of the influenza poison was no longer able under the increased stress to perform its functions without unusual and often conscious effort. Hence though the heart might be attacked during the acute stage, it might not be until a later period that the cardiac complication would become manifest.

In all cases of influenza the heart should be watched with the same care that was exercised in rheumatism or pneumonia. Sternal oppression or pain, palpitation, dyspnœa or sense of faintness would call for careful examination of the heart. A small feeble pulse, unusually slow or rapid, and the short feeble first sound and later accentuation of the second, then increased deep dulness should make them think of the beginning dilation. Functional disturbances in influenza included those observed in the cardiac rhythm so commonly met with after the disease in patients who presented absolutely no signs of organic disease of the heart. Those symptoms must be attributed to the action of the influenza poison on the cardiac nervous mechanism, either on the vagus or on ganglia. Among the functional cardiac disturbances were palpitations, irregularities, bradycardia and tachycardia. Fortunately, functional disturbances usually disappeared in a few weeks, but in some instances he quoted they often lasted for years. To distinguish the functional from the organic cases might be extremely difficult and well marked examples of myocarditis were discovered at autopsy in cases which presented no symptoms or even signs of cardiac disease during life.

Dr. James Sampson, of Windsor, condemned in the strongest terms the employment of the coal tar products, and gave specific examples of their pernicious effects.

Dr. McPhedran, of Toronto, would condemn the misuse of these products, but he contended there was a legitimate field for their employment. In comparison with the large number of cases of influenza, he was struck by the variety of heart complications in comparison with pneumonia and diphtheria. He had seen cases of functional disturbance, but had not observed organic changes following influenza.

Dr. McCallum advised the use of stimulants, not necessarily alcohol, but strychnine.

SURGICAL SECTION.

There were six papers assigned to this section, but only two were presented, the first by Dr. E. B. Secord, of Brantford, upon thrombosis of the femoral vein following aseptic laparotomy and the second

by Dr. Ingersoll Olmstead, of Hamilton. Dr. Olmstead, reported a case of gastro-enterostomy with report of cases. After reviewing the operations of gastro-enterostomy as done in various clinics of Germany, France, England and America, and speaking of the results of different operators, the posterior method was said in most cases to be more satisfactory, and was the one usually employed by the surgeon. In a series of five cases, Von Hacker's method was employed in three of the cases, two being for a malignant stenosis of the pylorus, and the third for a case of cancer of the liver with stenosis of the stomach outlet. All cases recovered and were very much improved, all symptoms passing away after the operation. The two other cases were for simple ulceration of the pylorus, and in these the operation of Roux was performed. Both of these cases did perfectly well and gained from twenty to thirty pounds in weight after the operation.

Dr. Howitt, of Guelph, and Dr. Carstens, of Detroit, discussed the paper fully.

WEDNESDAY AFTERNOON.

The proceedings opened with a general meeting at which, Dr. Ferguson delivered the address in surgery.

The surgery of to-day was his topic and he designated it as being not national but cosmopolitan. The physician and surgeon, so far from being antagonistic, were inseparable and the best results in surgery were obtained, not by competitive struggle between physician and surgeon, but by a graceful co-operation, one with the other for the benefit of the sufferer. Dr. Ferguson then passed in rapid review many of the operations in surgery, for example, the removal of cerebro-spinal fluid by lumbar puncture, the use of the trephine for the relief of traumatic epilepsy, the X-ray diagnosis of fractures of the skull and detection of bullets, and division of the sensory root of the Gasserian ganglion for relief of doloreux. Reference was made to the relief afforded to facial palsy and facial contractions by anastomosis of the spinal accessory and the facial nerve. Improved methods for closure of cleft palate, temporary closure of the carotids, and the enigma of the behaviour of the thyroid fluid in health and disease, and the results of operative treatment received attention in the paper.

The following subjects were discussed further from the surgical point of view, mammary carcinoma, wounds of the heart, surgery of the lungs, visceral pleurectomy and joint surgery.

A retrospect of the study of medicine since the writer entered the profession twenty-six years ago was bewildering. He described an amputation witnessed a quarter of a century ago, and said the advance had

been marvellous. The improvement in abdominal surgery had been most marked. He pointed out that any operation for the cure of oblique inguinal hernia which did not take into consideration the various local causes and natural relationship of structures should be discarded. He then described his operation for that condition. Liver surgery and the surgery of the gall-bladder, the pancreas, spleen, kidneys and prostrate were then touched upon. The present day surgery of the female pelvic organs, of the appendix, stomach and intestines, were reviewed in graphic terms. In conclusion, he said that a cure for the two monster human destroyers, cancer and tuberculosis, would materially limit the surgery of the future—a consummation devoutly to be wished.

At the general meeting the following nominating committee was appointed: Ontario, Drs. Mitchell, Cameron, Farncombe, Eccles, Gunn, Herald, Powell and Sir James Grant; Quebec, Drs. Armstrong, Hutchison and Macphail; New Brunswick, Dr. Atherton; Nova, Scotia, Dr. Dewitt; North-West Territory, Dr. Patrick; British Columbia, Dr. Gibbs. An address on gynæcology was to have been delivered by Mathew D. Mann, of Buffalo, but the secretary had no intimation at the moment as to whether or not he would be present.

MEDICAL SECTION.

Dr. A. McPhedran read a paper upon amyotrophic lateral sclerosis. He presented a case with photographic illustrations. The patient was a man aged forty-eight and lived an outdoor life. The symptoms began a year before admission to the Toronto General Hospital, with some weakness and stiffness in the legs, and a few months later the left arm and hand became weak, and then the right arm and hand. About the same time he found his speech defective and swallowing difficult. Upon admission to the hospital he was barely able to walk, and was unable to feed himself. The legs were markedly spastic, but showed atrophy. The hands and arms were the seat of marked atrophy and almost helpless. The face showed some atrophy, the speech was almost unintelligible; the swallowing was difficult, fluids could only be swallowed in an erect position. He left the hospital growing worse and showing the mental perturbation that usually accompanies the disease.

Dr. Benedict, of Buffalo, read a paper upon multiple visceral lesions; two other papers, by Drs. Burnham and Wright were not given. Dr. Dixon, of Toronto, exhibited the Finsen light, and Dr. McCallum exhibited a case of adherent pericardium.

SURGICAL SECTION.

Dr. J. Price-Brown, Toronto, read a paper upon the "relation between the general practitioner and the specialist in regard to the treatment of intra-nasal disease. He defined the position and mutual relation of these two classes, and pointed out the bearing of the triple function of the nose upon general conditions, namely its purifying, heating and saturating the air of respiration. After describing in detail the qualifications of the ideal nose, he urged upon the general practitioner sufficient knowledge and care to detect any departure from that standard, and ability to deal with defects of minor importance. Dr. Price-Brown described his method of treating atrophic rhinitis, subacute and chronic catarrh, and pointed out several conditions with which the general practitioner could adequately deal, namely, the removal of spurs and ledges, of nasal polypi, and empyema of the antrum of Highmore. But he warned them against the dangers attendant upon the use of the thermo-cautery on account of the infiltration that may follow its careless employment. Upon the other hand he enumerated the conditions that should be handed over to the specialist, such as turbinectomy and the removal of tumours, even in preference to having them dealt with by the general surgeon. Dr. Price-Brown then referred to the electrical methods of intra-nasal operation, quoting from an unpublished paper of Bryson Delavan, and saying that he himself had employed the method with excellent results, eight years ago, as was proven by published cases.

The question of municipal sanitaria for the cure of consumption was introduced and a resolution was submitted, urging the Government of the province to make provision. The resolution was supported by Rev. Dr. Moore, of Ottawa, ex-moderator of the Presbyterian General Assembly, and it was carried unanimously.

The association agreed to invite the British Medical Association to hold its 1905 meeting in Toronto.

Another resolution urged the Government to establish a Department of Public Health.

In the afternoon, the London Hunt and Country Club entertained the visitors at tea at the Kennels. In the evening a dinner was given at the Provincial Asylum, and both entertainments were much enjoyed.

On Thursday morning, a large number of members visited Walkerville and Detroit as the guests of Messrs. Parke, Davis & Co., the well known manufacturers of proprietary preparations, and were given a liberal entertainment, including luncheon, dinner, a sail on the river and free transportation both ways.

On Friday morning a general meeting was held for the reception of reports of Committees, and the election of officers:

President, S. I. Tunstall, Vancouver; Vice-Presidents, A. McPhedran, Toronto; F. G. Finley, Montreal; G. E. DeWitt, Nova Scotia; Dr. Blair, New Brunswick; R. L. Fraser, Victoria; T. A. Patrick, Yorktown, Assa.; S. R. Jenkins, Charlottetown; J. A. McArthur, Winnipeg; Local Secretaries, Ingersoll Olmstead, Hamilton; Andrew Macphail, Montreal; C. D. Murray, Halifax; Dr. Crawford, St. John; W. Bryden Jack, Vancouver; D. Low, Regina; A. E. Douglas, Hunter River, P.E.I.; W. Rogers, Winnipeg; General Secretary, George Elliot, Toronto; Treasurer, H. B. Small, Ottawa.

Dr. George Elliot, of Toronto, performed the duties of General Secretary, and Dr. R. P. Robinson, of Ottawa, replaced Dr. H. B. Small, who was unable to be present, as treasurer.

The meeting in 1904 will be held in Vancouver.

McGILL MEDICAL COLLEGE.

The seventy-second session of the McGill Medical Faculty, will commence on Tuesday, 22nd September, at 3 p.m., by an introductory lecture. The lectures will be resumed the following day and will continue till the 21st May, 1904, when the annual examinations will begin. The matriculation examination has been raised by the introduction of physics and chemistry, and it begins the 9th September, ending the sixteenth. The fee is five dollars, and the annual fees $125. To judge from the number of enquiries, it is expected that the Freshman class will be very large.

Dr. J. G. McCarthy, has been appointed assistant professor in anatomy; Dr. J. G. Horsey, assistant professor in pharmacology, both formerly on the list of lecturers. To the latter have been added the names of Dr. R. A. Kerry, lecturer in pharmacology; Dr. S. Ridley Mackenzie, lecturer in clinical medicine; Dr. John McCrae, lecturer in pathology; Dr. D. A. Shirres, lecturer in neuro-pathology, and Dr. D. D. McTaggart, lecturer in medico-legal pathology, whilst to the list of demonstrators have been added the following:—Drs. C. K. P. Henry and A. R. Pennoyer, assistant demonstrators in anatomy; Drs. W. L. Barlow and C. B. Keenan, assistant demonstrators of clinical surgery; Drs. G. K. Grimmer and W. H. Jamieson, assistant demonstrators in laryngology; Dr. D. Patrick, assistant demonstrator in gynæcology, and Drs. B. W. D. Gillies and C. A. Peters, assistant demonstrators in clinical medicine. Dr. H. Wolferstan Thomas has resigned his fellowship in pathology to accept an offer from the school of Tropical Medicine in Liverpool.

BISHOP'S COLLEGE.

The thirty-third annual session of the Faculty of Medicine of the University of Bishop's College will commence on Tuesday, 15th September, by the usual opening lecture. It will continue till the 28th of May, the date of Convocation, with only the Christmas holidays intervening.

The professorial staff has Dr. Hebbert added to it in the department of anatomy, and Dr. Deeks has resigned his lectureship. The schedule of lectures has been entirely remodelled in accordance with the new regulations to give a graded course and to provide for the greatest economy in the students' daily work.

In outline, the course is as folows :—

First year:—anatomy, practical anatomy, physiology, practical physiology, histology, chemistry hospital attendance.

Second year:—anatomy, practical anatomy, physiology, practical physiology, materia medica and general therapeutics, dispensing chemistry, practical chemistry, histology, hospital attendance.

Third year:—medicine, clinical medicine, surgery, clinical surgery, general pathology and bacteriology, obstetrics, clinical obstetrics, gynæcology, clinical gynæcology, pharmacology, and general therapeutics, medical jurisprudence and toxicology, hygiene, autopsies.

Fourth year:—medicine, clinical medicine, surgery, clinical surgery, autopsies, obstetrics, clinical obstetrics, gynæcology, clinical gynæcology, ophthalmology and otology, laryngology and rhinology, dermatology, pediatrics, psychiatry.

The fees remain as heretofore, $100, with $30 for graduation.

MONTREAL GENERAL HOSPITAL.

The Montreal General Hospital report for August, shows that there were 243 patients admitted into the wards during the month, 217 discharged and 18 deaths. The average number daily in residence was 188. There was a great increase in the number of typhoid fever cases, which severely taxed the capacity of the hospital; at one time 35 cases, as compared with 15 for the same date last year. The ambulance responded to 140 calls. There were 2,904 consultations in the out-door department. The incoming resident medical staff enter upon their duties to-day, 1st September.

In July 280 patients were admitted and there were 21 deaths. The ambulance responded to 127 calls, and in the out-door department there were 2,672 consultations.

ROYAL VICTORIA HOSPITAL.

Record for the month ending August 31st: Patients in hospital at last report, 185; admitted during month, 223; discharged, 224; died, 9; patients in hospital at this date, 175. Discharges: cured, 134; improved, 79; unimproved, 5; not treated, 6; died, 9; total, 233. Admittances: medical, 81; surgical, 101; ophthalmological, 8; gynæcological, 27; laryngological, 6; total, 223. Out-door department: Medical, 939; surgical, 475; eye and ear, 279; diseases of women, 164; nose and throat, 250; total, 2125. Ambulance calls, 55.

WESTERN HOSPITAL.

During the month of August, there were 44 patients admitted to the hospital. In the out-door department there were 665 consultations, divided as follows: medical, 206; surgical, 153; gynæcological, 107; eye and ear, 55; nose and throat, 96; skin, 15; genito-urinary, 33.

The Ontario Government has voted $4,000 to the Gravenhurst Sanatorium under the general statute providing for such grants.

The ratepayers of Winnipeg by abstaining from voting have defeated the by-law to raise $60,000 to provide improvements for the General Hospital.

As a result of the public attention that was called to the condition of the St. John Hospital, the management has decided to expend $20,000 in enlarging and improving the institution.

Dr. McArton, of Paisley, died on the 10th August, in his 51st year.

Dr. J. B. Lundy, of Preston, died on the 20th August, in his 77th year.

Dr. Lucius S. Olle, of St. Catharines, died on the 15th August, in his 73rd year.

Dr. James McGarry, Niagara Falls South, died on the 13th August, at the age of 69 years.

Dr. Fife Fowler, dean of Queen's Medical College, Kingston, died on the 3rd August, at an advanced age.

Dr. J. W. McLaughlin, Registrar for West Durham, died in Bowmanville, on the 9th August, aged 63 years.

The death is annouced at Guelph on the 18th July, of Dr. E. H. Wells. He died after a two day's illness of pneumonia.

Dr. E. C. P. Chevrefils, inspector of prisons, asylums and public offices for the province of Quebec, died in Montreal on the 23rd of August, in his 68th year.

Dr. Charles Mickle, of Buffalo, died in Ashville on the 21st July. His native place was Guelph and he was buried in Toronto. Dr. Mickle was a graduate of Trinity University in 1880.

Dr. W. J. Nelson, of Winnipeg, died on the 16th July, after a long illness and operation. The cause of death was pneumonia following the impaction of a piece of chewing gum in the bronchi. Dr. Neilson was the member for North Winnipeg in the Legislature and a graduate of McGill University.

Dr. Donald Maclean died in Detroit of gastro-enteritis on the 24th July. Dr. Maclean was a Canadian, a graduate of Edinburgh and practised in Kingston, Ont., up to 1870. He was a surgeon in the United States Army, professor of surgery in the University of Michigan, chief surgeon of the Michigan Central Railway, and in 1894 president of the American Medical Association.

Retrospect of Current Literature.

MEDICINE.

UNDER THE CHARGE OF JAMES STEWART, F. G. FINLEY AND H. A. LAFLEUR.

Stokes-Adams Disease.

WILLIAM OSLER. "On the so-called Stokes-Adams disease. *The Lancet,* August 22, 1903.

The brief notice which many of the rarer yet very important syndomes or symptoms-complex, command in our text-books, can scarcely avail to give the student an adequate idea of the application of such terms as Stokes-Adams disease, Bauti's disease, and Von Recklinghausen's disease. One must turn to such comprehensive articles as appear from time to time written by leading clinicians and including quotations from many observers, if one would acquire an up-to-date knowledge of any of these rarer forms of disease. Professor Osler has contributed largely to the knowledge of many of the more obscure conditions with which one is liable at any time to meet. This article now under review is another of those comprehensive yet succinct descriptions of the conditions included under the term "Stokes-Adams dis-

ease," which therein is described as a clinical condition characterized by:—

1. A profound disturbance in the automatic mechanism of the heart —true bradycardia, hemi-systole (false bradycardia), and allorhythmia.

2. Nervous symptoms, vertigo, syncope, pseudo-apoplexy and epileptiform attacks.

3. Secondary symptoms, Cheyne-Stokes breathing, cardiac asthma, angina pectoris, and the vaso-motor accompaniment of profound heart-shock.

"The clinical picture is very variable—there are acute, rapidly fatal cases, chronic cases in which for years the patient has a slow pulse with syncopal or pseudo-apoplectic attacks, and forms in which slight but well characterized attacks occur at intervals in persons apparently well."

There are no constant post-mortem changes, but in a large proportion of cases arterio-sclerosis is present, while in some no lesion is to be found. While patients presenting this symptom-complex were recognized so long ago as 1827, when Adams described his case, yet the number of reported cases, while doubtless increasing, is yet small. The cases are arranged in three groups: (1) the post-febrile group, where bradycardia, vertigo, syncope, or epileptic seizures come on after an attack of typhoid fever, diphtheria, pneumonia, etc.; (2) the neurotic group (a) with coarse lesions of the nervous system especially medullary pressure or vagi lesions, (b) with no lesion distinguishable; (3) the arterio-sclerotic group comprising the greater number of all reported cases.

Dr. Osler analyzes twelve cases, all of which were male patients, three were above 76 years of age, and six were between 50 and 70 years of age. The youngest was 35 years old—the case following a streptococcus infection. Excluding this patient, these cases are grouped as follows : five cases with severe and acute symptoms, four cases—a senile group; two cases—a milder form. Did space permit a complete review of the cases quoted would be made.

What happens to disturb the rhythm of the heart? "Is the essential factor central in the medulla, or in the ganglia of the heart, or in the automatic mechanism of the muscle itself, or in the auriculo-ventricular bundle of His, jun., or in Kronecker's coordination centre?" It is not known. Transient anæmia of the nerve centres explains vertigo and syncope—and this may be of cardiac origin, or it may be due to local changes in the medulla. The prognosis is bad in all cases. The treatment with potassium iodide, nitrites, atropine, regime, posturing with an on-coming attack, and inhalation of oxygen have all been found of service.

Sciatica.

William Bruce. "Sciatica—an inquiry as to its real nature and rational treatment, founded on the observation of upwards of 400 cases." *The Lancet,* August 22, 1903.

In this interesting article Dr. Bruce advances, with becoming earnestness, the view that sciatica, is some affection of the hip joint and not neuritis of the sciatic nerve, that it is connected with the gouty or rheumatic diathesis, and also with so-called mono-articular rheumatic arthritis of the hip. He finds support for this view in many quarters—the site of pain in early cases—about the hip, the flattening of the glutei and the obliteration of the folds of the nates, in the absence of positive signs of a neuritis in the unaltered nutrition of the other muscles of the leg, etc. etc., and in the results of the treatment by *rest!*

MacFayden and MacConkey. "An experimental exmination of mesenteric glands, tonsils and adenoids with reference to the presence of virulent tubercle bacilli." *The British Medical Journal,* July 18, 1903.

The experiments were primarily undertaken with a view to determine the presence or absence of virulent tubercle bacilli in the mesenteric glands of young children by an examination of suitable post-mortem material,—thus furnishing possibly some additional data with reference to the importance of the digestive tract as a channel for the entrance of tubercle bacilli into the system. Twenty-eight cases were examined, two only being of patients above five years of age. Tuberculosis was found in but eight of these cases—twenty being non-tuberculous. The animal inoculation experiments showed that virulent tubercle bacilli were present in the mesenteric glands in ten of the twenty-eight cases, eighteen were negative, while of the eight cases of tuberculosis, five gave a positive and three a negative result.

Tubercle bacilli from these experiments it would appear are present in the mesenteric glands more frequently than ordinary post-mortem examinations would lead one to suppose.

The adenoids and tonsils presented no signs of tubercle and in not a single case were tubercle bacilli found in the animal experimented on. In the mesenteric glands of a still-born child, tubercle bacilli were detected.

W. F. H.

SURGERY.

UNDER THE CHARGE OF GEORGE E. ARMSTRONG.

The Surgery of Simple Diseases of the Stomach.

B. G. A. Moynihan, F.R.C.S., Eng. The Surgery of the Simple Diseases of the Stomach. *Boston Medical and Surgical Journal*, June 4, 1903.

The great majority of the simple diseases of the stomach which are successfully treated by surgical intervention are caused by ulceration, or its complications, or results. These various conditions are taken up as follows: (1) Perforation of gastric or duodenal ulcers; (2) Hæmorrhage from gastric or duodenal ulcers; (3) Chronic ulcer, its various clinical types.

In the case of perforation of a chronic ulcer medical treatment alone may lead to cure; (the writer mentions two cases in which a diagnosis of perforation had been made, treated medically of necessity, and the subsequent operation revealed undoubted evidence of a peritonitis completely surrounding the stomach) nevertheless, the difficulties of diagnosing the variety of perforation, its location, the uncertainty of spontaneous recovery and of limiting adhesions, are such as to make it imperative to adopt operative treatment at the earliest possible moment. "The risk of operation is definite, the hazard of delay inmeasurable."

Some difficulty in the diagnosis may be experienced if morphine has been previously given, or when the acute pain, etc., is associated with menstruation. The writer puts great stress upon the absence of abdominal rigidity in these conditions, while a continual hardness and rigidity is present in cases of perforation. He does not consider excision of the ulcer at all necessary, but first closes the hole by a single catgut suture and reinforces by two continuous sutures of Pagenstecher thread. If operation be performed within 10 to 12 hours after rupture, no irrigation or drainage is necessary, but a gentle wiping over of surrounding area with wet swabs. If drainage be necessary it should be free, as also should be irrigation by enlarging first incision and by a second superpubic incision. The multiplicity of perforating ulcers is emphasized, double perforation being present in no less than 20 per cent., and generally "on the posterior surface at a point exactly opposed to the first."

Hæmorrhage may take place from an acute or from a chronic ulcer, and the clinical picture in the two cases differs widely. The characteristics of hæmorrhage from an acute ulcer are:—"Spontaneity, abruptness of onset, the rapid loss of a large quantity of blood, the marked

tendency to spontaneous cessation, the infrequency of a repetition of the hæmorrhage in anything but trivial quantity, and the transience of the resulting anæmia." Hæmorrhage from a chronic ulcer varies greatly in frequency and quantity.

(1) It may be latent or concealed and recognized only after minute examination of stomach contents and fæces.

(2) It may be intermittent. Here the bleeding is copious but transient and occurs at intervals of two, three, or more months. In this group indigestion is a prominent symptom and anæmia is almost constant.

(3) In this class the hæmorrhages are rapidly repeated, at intervals of 12 to 24 hours, and are always large, a pint to a pint and a half of blood being vomited. These cases all give histories of long standing indigestion, with recent increase in severity of pain, etc., and then suddenly, and without apparent cause a profuse hæmorrhage occurs to be repeated as above. This, if unchecked, will cause the patient's death.

(4) Here the hæmorrhage is enormous, instant, overwhelming and lethal. Fortunately this class is very rare. The hæmorrhage is due to the opening into the aorta, vena cava, splenic, or pancreatic-duodenal vessels. The writer cites one of his cases where the splenic artery was opened into.

Hæmorrhage from an acute ulcer does not frequently call for surgical intervention, but there are some cases in which the hæmorrhage may be both copious and recurrent. Some cases present no single bleeding point, but the whole mucosa appears to be weeping blood, or there is a villous patch, or many irregularly scattered points of oozing. In all these cases the writer regards any attempts directed locally to stop bleeding as futile, and strongly recommends a gastro-enterostomy as proving "more effective than any other procedure, both in checking the hæmorrhage and in preventing its recurrence." Hæmorrhage from a chronic ulcer requiring surgical treatment is limited mainly to class (3) in which the hæmorrhage is frequently repeated and always abundant. Here again local treatment is considered as "unnecessary, undesirable, and in many cases impossible," and gastro-enterostomy is strongly advocated.

The liability of mistaking a chronic ulceration for malignant disease is dwelt upon, and the following contrast given. "A malignant growth is always irregular, knotted, nodular or gritty on the surface; an inflammatory mass is more smoothly rounded off, and there is often a milky opacity on the peritoneum." He regards Hauser's estimate of 6 per cent. for the frequency in which malignant disease develops in chronic ulcer as being in "excess of the truth."

As a result of chronic ulcer, we have the hour-glass stomach produced, or a trifid stomach, or a dilated stomach due to pyloric or duodenal obstruction, and also a warping of the stomach from adhesions to abdominal wall or neighbouring organs and structures, all giving rise to an inveterate dyspepsia; and "inveterate dyspepsia is, in itself, an ample warrant for surgical treatment." The operative treatment is a gastro-enterostomy. "In all cases, therefore, I submit gastro-enterostomy, and gastro-enterostomy alone should be performed. Excision is unnecessary, often impossible, always insufficient (the ulcers rarely being solitary), and is, therefore, not to be commended. Pyloroplasty is an uncertain operation, and its results cannot compare with those seen after the operation of gastro-enterostomy."

The operation is performed by forming the anastomosis on the posterior surface of the stomach (von Hocker's method), he uses no mechanical aids, claiming that the simple suture is a speedy, "applicable to all forms of anastomosis, and is not open to the objection that future troubles are at least possible." The cut surfaces are united by two suture-lines surrounding the anastomotic ring; an inner, hemostatic, including all layers of the gut, and an outer, approximating, taking in only the serous and subserous coas.

Hour-glass Stomach:—The writer doubts the existence of a congenital hour-glass stomach, and states, "there is, indeed, no inherent improbability in the existence of congenital hour-glass stomach, but it lacks proof." Acquired hour-glass stomach may be produced by (1) perigastric adhesions resulting from gastric ulcer, tuberculous peritonitis, inflammations of gall-bladder, etc.; (2) ulcer with local perforation and anchoring to anterior abdominal wall or pancreas; (3) chronic ulcer; (4) malignant disease. The symptoms vary according to the position of the constriction; if near cardiac end they will resemble œsophageal obstruction low down; if near plyorus those of dilated stomach will be found.

The differential diagnosis is between an œsophageal stricture low down and a constriction near cardiac end, this can be cleared up by passing the œsophageal bougie; and between a dilated stomach and a constriction near the pyloric end, this is determined by gastric lavage (Wölfler's two signs).

The operation will depend upon condition found, and attention is called to the existence of a dual stenosis. The following operations may be performed. (1) Gastroplasty or (2) Gastro-gastrostomy in cases of single hour-glass stenosis. (3) Either of the foregoing with gastro-enterostomy from the pyloric pouch, in cases of dual stenosis. (4) Gastro-enterostomy from cardiac pouch, when pyloric pouch is so

small it can be ignored. (5) Gastro-enterostomy from both pouches. (6) Partial gastrectomy—the operation of choice in malignant stricture in the body of the stomach.

The contribution is based upon the following cases:—

Perforating gastric or duodenal ulcer, 12 cases, 6 deaths; gastro-enterostomy for chronic ulcer, 70 cases, 1 death; pyloroplasty, 3 cases, 0 deaths; hour-glass stomach, 15 cases, 3 deaths; gastroplication, 1 case, 0 deaths; excision of ulcer for hematemesis, 1 case, 1 death.

A Criticism of Current Doctrines Concerning Hernia.

Edward Deanesley, M.D., F.R.C.S., Eng., Honorary Surgeon Wolverhampton General Hospital. "A Criticism of Current Doctrines Concerning Hernia." *British Medical Journal*, June 27, 1903.

The author's contention, briefly, is that oblique inguinal herina, ordinarily regarded by surgeons as being in the majority of cases "acquired," is in reality always "congenital"; that is that even in the so-called acquired cases the herina comes down through an unclosed funicular process, present since birth.

In the first place, he argues, it is inherently probable. Again the frequently large size, narrow neck, and rapid development of the early inguinal herina argue for a pre-existing sac as against an intact peritoneal wall. It is further well known that the first appearance of a hernia may be delayed for many years in a person in whom the funicular process is congenitally patent; and, indeed, this condition has been found not infrequently in patients who have never had a hernia. There is, therefore, "no difficulty in believing that a patent funicular process exists from birth in every oblique inguinal hernia, whatever the age at which it first appears." The question is not of merely academic interest; and the author draws the practical deduction, that, if every case is congenital, it can be completely cured by removal of the congenital malformation—that is, the sac—provided the operation is done soon after the first appearance of the hernia, or, at any rate, before the presence of the hernia or the pressure of a truss have produced secondary distension and atrophy of the muscles of the inguinal canal. Operation therefore should be the rule, and the truss the exception.

The Treatment of Gastric Ulcer.

John C. Munro. "The surgical treatment of gastric ulcer." *Boston Medical and Surgical Journal, 20th August, 1903.*

Dr. Munro believes that sixty per cent. of all cases apply for relief too late, from a surgical point of view. He is of opinion that three-fourths of the diagnoses based upon chemical analyses are of no value

though interesting, and quotes the dictum of Mikulicz; the danger to life from gastric ulcer is at least not less, but probably greater, than the danger of a complete modern operation. In conclusion he urges a more intimate co-operation of the physician and surgeon in the observation of patients with ulcer of the stomach. The surgeon, he says, must willingly grant that a majority of simple ulcers are best treated and cured by the internist, but on the other hand, the latter must as willingly consider surgical advice in the obstinate or serious types of cases, and learn in the living a pathology that it is impossible to learn in any other way.

Operation for the Radical Cure of Varicocele.

Robert M. Thornburgh. "The suprapubic operation for the radical cure of varicocele, with a report of eighteen cases." *Medical Record, 29th August, 1903.*

From these cases the writer concludes that the suprapubic route seems to be the better. The field of operation can be more readily rendered aseptic; a dressing once properly applied will remain indefinitely and not be affected by the movements of the patient, and primary union is a practical certainty. It would appear to the writer that there are no advantages whatever that can be urged in favor of the scrotal incision.

Extirpation of the Urinary Bladder.

Frank Hartley. "Extirpation of the urinary bladder." *Medical News, 29th August, 1903.*

This is an elaborate study of 23 cases with 12 recoveries. The different methods of operating are fully discussed; the writer favours in the male cutaneous or urethral implantation of ureters.

Mammary Cysts.

Robert Abbe. "Consideration of mammary cysts in the differentiation of breast tumours." *Medical Record, August 15th, 1903.*

Dr. Abbe lays stress upon the prevalence of cysts, which are often erroneously diagnosed for malignant tumours and quotes 41 cases in support of his argument. He concludes that the severe treatment of mammary amputation, at one time widely advised, and still advocated by some, has been much modified by recent discussion.

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THE LYMPH CIRCULATION IN MODERN MEDICINE.

BY

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Owing to the illness of Dr. James Stewart, of Montreal, the address in Medicine was pressed upon me by your president and committee. In reluctantly accepting the honour, I recognized not only the short interval for preparation, but my inability to give such a popular address as the occasion calls for. In relying on your charity to-day, I accept the investment of this office, not as an honour, but as a duty.

On account of the time left, I must of necessity select a subject with which I have already been familiar. In announcing it as "The Lymph Circulation in Modern Medicine," one feels that we are treading upon a new continent of thought. It is a subject that is in intimate relation with every branch of medicine and surgery. The unsolved problems of physiology, pathology and therapeutics must find their final solution here. The final contributions in these three realms must be cytological, by painstaking study of the cellular elements. As cells of their own vital activity feed and oxidize themselves from the adjacent lymph stream, it must be basic to every problem in medcine how lymph is kept nutritious, and how it rids itself of its waste products. The tissue juice or lymph is not only the food of cells, but their sewerage system as well.

Two hundred and fifty years ago, Rudbeck discovered the general lymphatics, and gave the first conception of the irrigation theory of tissue nutrition. Hunter believed in the theory of tissue suction; Johannes Müller ascribed lymph to the vital activities of the living cells of the body.[1]

In 1850 Ludwig propounded the theory, which bears his name, that lymph was renewed by filtration and osmosis. Twelve years ago, R. Heidenhain startled the physiological world with experimental evidence, which he claimed was fatal to Ludwig's theory. He experimented with certain substances, which altered in quantity or quality the

[1] Address in Medicine, Canadian Medical Association, 1903.

lymph coming from the thoracic duct; these he called lymphagogues. A great deal of physiological work has been done in the last twelve years in this department, and a considerable number of physiological authorities have fallen away from Ludwig's School, although not fully accepting Hiedenhain's theory of endothelial secretion from the capillary wall. The champions of Ludwig have been put to their wits' end in squaring the laboratory evidence with filtration, osmosis, and diffusion.

Before touching upon the contested theories, let us have a glance at the modern anatomy of the lymphatic system. Budge[2], thought there were two lymphatic systems. One of these disappeared in development. Ranvier, W. G. MacCallum, Sala and Florence R. Sabine have separately arrived at this conclusion, that the lympathic system is a modification of the circulatory system, that it grows by budding backward from the subclavian vein, and gradually invades the tissues and organs, that these buds are closed or blind at their terminals, and have no physical connection with tissue spaces. Ranvier looked upon the lymphatic system as a great gland, the blind, protruding capillaries as the secretory parts, while the ducts were the excretory canals. These lymphatic capillaries are lined by endothelial tissue. The termination of the lymphatic system in the lacteal of the intestinal villus is a fair sample of its method of termination in other tissues. There are tissues like cartilage and the cornea which are never invaded by lymphatic capillaries. The lymphatic glands seem to be an after thought in development, as they are absent till we reach birds and mammals.

These anatomical and embryological studies bring us face to face with this; that we have included as one system the tissue juices and the lymphatic when in reality they are separate. The tissue spaces and their juices are not part of the lymphatic system. The fact that we have been considering two fluid systems as one demands strong confirmatory testimony of an evolutional, pathological, and clinical character to be weighed with laboratory evidence in reaching a working hypothesis on this circulation.

The amount of lymph in the human body is difficult of estimation. Waller[3], approximately estimated it to equal three or four times that of the blood. This estimate is probably too high, but the quantity of this fluid shows its marvellous importance. Florence R. Sabine, when suggesting the function of the true lymphatic system to be a system of absorbents, gives evidence obtained from a "specimen of twins prematurely born, one of which was normal, while the other was so edematous that it was simply a round ball. Examination of the edematous one showed no trace of a thoracic duct, nor lymph glands."[4]

The tissue juice circulation I shall call the lymph, and the other the lymphatic. As the lymphatic is one of the forces in the lymph circulation there will be no attempt made here to divorce them Are we in possession of sufficient data to indicate the method by which lymph passes over from the blood stream to the lymph circulation? Does the balance of testimony point to lymph as a secretion a filtration, or a product extracted or sucked out by the vital activity of the tissues themselves?

If the field of inquiry be extended to embrace facts from evolutional, embryological, physiological, pathological and clinical sources, the answer to the first question can reasonably be affirmed. The second question points to lymph as an independent circulation, and its forces are the vital activity of the tissues. It would follow that the lymph itself was an extraction product from the blood stream. The extraction process may have some of the characters of secretion and filtration. It is not to be denied that the physical laws of the liquid act in the body, but their scope in the lymph circulation is overshadowed by the selective action arising out of the vital activities of the tissues. The thing that most concerns us is that lymph circulation is an independent one.

Lymph will flow from the thoracic duct in some cases as long as four hours after the death of the animal. Ludwig long ago discovered that ligation of this duct was soon followed by rupture of it behind the point of ligature.

Harley by his experiments[5] on the production of jaundice in dogs, found that when he ligated the hepatic lymph ducts and the biliary duct simultaneously, there was great danger of rupture of one of them. These experiments were conducted to show that bile gained entrance alone by way of the lymphatic circulation, but they also show an unsuspected power behind this primeval circulation.

There are evidently as many circulatory forces as there are tissues, each tissue possessing a method of its own in the selection of lymph. Easily understood examples of this may be seen in the vitreous humor of the eye, cartilage, bone, voluntary and involuntary muscles, epidermis, and hair. Their peculiarities will be discussed again at some length.

In addition to the abilityof this circulation to continue for hours after cardio-vascular death, and independent of the latter forces, we see it the sole circulation in the vegetable kingdom, and the mighty trees of the forest are the evidence of its powers. It is the sole circulation in the lowest forms of animal life, and executes oxidation, excretion, secretion, vital movement reproduction and repair. It is the sole circulation in the early weeks of embryonic life of all individuals, promoting purpose-

ful growth, building the scaffolding and laying down the framework of all our human system.

Without question, the lymph circulation existed long before the cardiovascular, and was in possession of independent forces and functions. Can it be possible that this ancient circulation, which called into being the cardiovascular system, would lose in the new comer its own identity and independence? Or was the cardiovascular system secured for greater importation and exportation facilities?

The studies of Dr. A. B. McCallum on the inorganic composition of certain sea forms and sea water show that the former's degree of salinity can only be explained on the ground that the cells lining their gastro-vascular channels and the covering cells have a vital selective action. Speaking of the inorganic composition of blood plasma and its strong resemblance to ancient sea water the author says, "these can hardly be mere coincidences, and they seem to indicate that the properties in plasma are an ancestral feature derived from a form which had its habitat in the ocean in the earlier geological periods, when ocean water was very much less rich in salts of magnesia than it is now. Just as in the Medusaæ of to-day the gastro-vascular fluid is but sea water, so in the ancient oceanic prototypes of the Vertebrates and of Invertebrates which are provided with a distinct circulatory system, the fluid in their vascular channels which communicated with the exterior was probably but modified sea waters as regards its inorganic constituents, and in the long period of time during which the forms were exposed to the conditions of such an environment a physiological relation between the tissues and the salts in their vascular fluids, in the proportions occurring in their environment, became so fixed and established that it was of necessity transmitted to the descendant forms living in different habitats, whether on land or in fresh water."[6]

By the blood stream, oxygen ard nutrition are carried to the issues, and waste products are carried away. If we knew how oxygen was utilized by the tissues, it would give us "scientific anticipation" of the modus operandi of the other functions of the lymph circulation.

The history of the physiological teaching of oxidation is interesting. The ancient belief that arteries contained air and carried it to the tissues was abandoned after Harvey, and in its place came th teaching that the lungs were two furnaces burning up the waste products carried to them. Then followed the teaching that the blood oxidized the tissues through walls of the systemic capillaries. This was replaced by the teaching that blood oxidized the perivascular lymph, and the tissues became oxidized by contact. The present day teaching is that cells oxidize themselves by their own inherent vital activity. By their own

instinct they seize the oxygen in the lymph and cast back their products of metabolism, products of secretion and excretion.

Internal secretion and excretion are cast from the lymph stream to the blood stream simultaneously. The giving up of lymph by way of the thoracic duct is a very remote and fractional part of the interchange.[7] The interchange is almost entirely effective between the lymph spaces and the blood capillaries. It has been found that when an animal is being bled the later portions of blood are more dilute than the first, and this is the case whether the thoracic duct is ligated or not.

Experimentally, we know that from the hind limbs of an animal at rest no lymph flows. By kneading the muscles a free flow can be induced. Passive or active movements of the limbs bring about a free flow. It is known that in the quiescent state lymph coming from the thoracic duct is from the viscera. Glandular or muscular activity takes front rank as increasers of lymph flow.

In harmony with the post-mortem flow of lymph, examination of the web of a frog's foot after the heart has been cut away or the vessels clamped, movement in the blood capillaries will continue from five to fifteen minutes thereafter; when all movement has ceased, it will return if some irritant be applied to the web.

It seems that the lymph circulation being more ancient and stable continues after cardiovascular death. A student whose mental make up enables him to see the other side of things, said in my class that "blood is simply mixed lymph with peculiar cells floating in it." Whatever we find in the serum we know has been cast there by the lymph.

A study of the blood serum is practically a study of general lymph. All the modern studies of serum will apply to the lymph. The causes of vital movement must be analyzed before we gain a clear view of lymph circulation. Evolutionally, this principle must be true, that all protoplasm, not undergoing vital movement in offensive or non-nutritive media must have been lost in the evolutionary process. This must be the basic explanation of all vital movement. By vital movement is meant not only contraction, but intervening relaxations.

The contraction of voluntary muscle is a powerful expulsion force on lymph within its sheath. Now before a voluntary muscle contracts, there is a carbohydrate explosion—giving rise to carbonic-acid, sarcolactic acid, etc. This takes place in the latent period before the visible contraction and changes the reaction of the muscle from an alkaline to an acid reaction. The contraction which follows upon this expels large quantities of lymph. Here clearly vital movement was inaugurated by offensive lymph and the purpose was to expel it.

Now the great stimulus to involuntary muscle movement is venous

blood, lymph obtained from venous blood surcharged with waste products; offensive lymph is the stimulus.[8]

It is interesting to note the wide distribution of involuntary muscle. We find it composing largely the walls of each hollow viscus. It is fully distributed in the stroma and capsules of glands and organs. And I would venture to say that more than one-half the involuntary muscle of the human body would be found to be in the immense area of the skin. Its slow rhythmic contractions with intervening relaxation suggest a tardily beating heart. The attachment of the erector pili muscle to the root sheath of the hair in such a way as to pump nutritive lymph into the hair shaft, and the acting of the ciliary muscle on the canal of Schlemm are two examples of this involuntary muscle acting as lymph to have associated with it in this action white fibrous and yellow elastic tissue. In the lungs the lymph circulation is almost wholly effected by voluntary muscle, during inspiration producing vacuum in the chest cavity, which would favour lymph entrance into lymph spaces and reservoirs.

The expiratory effort effected in natural breathing almost entirely by the elastic recoil would act as a pump to expel.

I have said enough to show how varied are the ways in which the forces act. Vital movement is best seen in muscular tissue, but is not peculiar to it, as doubtless all tissue is capable of some degree of vital movement. Vital movement does not always take the form of contraction, thorough relaxation may fill the enclosed spaces with lymph and dilute the offending lymph.

The lymphatic glands, spleen, uterus, intestines, ureter and bladder undergo variation in volume, rhythmically due to their involuntary muscle, and this will continue even when removed from the body. The rhythmic flushings of transparent parts (Albino rabbits' ear or bats' wing) and periodic variations in volume of one's arm (when in a plethysmograph), are explained as arising from this smooth muscle tissue. Traube-Hering blood pressure curves seen in states of asphyxia are similarly induced. We have the same rhythmic contraction of the walls of the lymphatic duct, and the intestinal lacteal is emptied by this tissue.

Offensive lymph inaugurates the respiratory and cardiac movements. Note how both will speed in states of asphyxia. A piece of steel embedded in the cornea has long taught us that this nonvascular structure can vascularize itself. This can only be explained on the theory that the tissues effected this by suction. Inflammation under such a view of lymph circulation would be simply excessive selection or extraction of fluid and cells from the blood. In states of asphyxia the lymph

coming from the thoracic duct is often bloody, an effect to be expected if the tissues secured their own lymph.

Now what does one mean by offensive lymph? Lymph may be offensive in being devoid of oxygen and nutrition, or containing metabolical and chemical products; high or low temperature would be an offense (to warm blooded animals), high or low pressure, vibrations and certain electrical variations. It is one's right to question "why" as often as "how." Adaptation of pathological process is an axiom in pathology, but there are countless examples in physiology. The adjustment of the iris to varying degrees of light is one of these. Here we see involuntary muscle adapted to expel offense. Heidenhain gave two divisions of lymphagogues, those increasing the water and those increasing the solids. I need not burden you here with details except to say certain salts like magnesium sulphate are powerful lymphagogues. This agent acted first as a lymphagogue, and secondly as a purgative. It is well that internal excretion should precede external excretion.

The lymph passing over to the blood stream contains defensive fluids, as well as waste products. Hence purging within certain limits may be a form of serum therapeutics.[9]

The action of the secretions of the ductless glands has not been brought into this discussion, but they vitally act on the tissues, and consequently on this circulation. The two most powerful agents in interchange of lymph are the muscular systems. They voluntarily expel lymph from their own body, and their sheaths, tendons and attachments, and place, as far as the limbs are concerned, this circulation almost wholly under the control of the will. The influence of the brain over the movements of the involuntary muscles is less than over the voluntary. The emotions can play upon this circulation almost past belief in some individuals.

To consider the skin as a system of external drains is to consider it not an important organ. The enormous amount of involuntary muscular tissue; the ability to corrugate itself to resemble "goose skin" in states of chill and fever, myodema and dermograph from strong or weak strokes to its surface, and the experimental evidence that stimulation of the pilomotor nerves, causes contraction in the skin, especially over the genital region,[10] will justify one in speaking of the skin as a great lymph heart. The skin's elasticity alone would make it that. One can scarcely separate the lymph heart action of the skin from some of its several other functions, it being sensory surfaces upon which are inaugurated impulses of pressure, temperature, pain, etc., which in turn set up reflexes of various kinds that keep the body adapted to environments. If the skin be considered the external body world, it arouses,

defends, and stimulates the inner mechanism more than can easily be conceived.

In order that I may not be charged with running thoughts till they are out of breath, I may bring forth Head's conclusions,[11] that each viscus had a definite segment of skin that would show sympathetic pain when the former was irritated. He assumed that impulses can reflex the other way, that irritation of the skin over these areas would have trophic influences on the corresponding viscus. The so-called "lung reflex," described by Abrams,[12] shows that this is true. By irritating the skin over the lung by means of cold friction, or Farradic currents dilation of the lung ensues, and an increase of the blood in that lung follows.

This is evident by obliteration of apex beat, cardiac and splenic dulness, along with the appearance of hyperresonance or percussion, and a more definite lung outline under X-rays.

Whether intra-spinal or intra-ganglionic, excitement inside is communicated to the skin outside, and vice versa. Beneath the skin both superficially and deep are great laboratories that can be aroused to feverish activity by stimulus applied upon the cutaneous surface.

By contraction of this great lymph heart, interchange of lymph and blood is effected, and the lymph passing over is a mixture of excretion and secretion, waste products and proteids, to defend the whole organism. It appears that the outer world excitement is accompanied by increased activity inside, else we had never been in possession of a heat regulating mechanism.

You well know the nervous mother who will make a hot-house plant of her child. There comes a day of exposure, and the child has "caught cold," has bronchitis, pneumonia, nephritis or gastro-intestinal catarrh. The *modus operandi* of "catching cold" is this: the lymph stagnates from want of proper skin stimulus which would be cold. The application of cold to the skin produces a powerful interchange, driving the excretory organs to overwork. Over-stimulation, from clinical evidence, we know can end in inflammation. The child who has daily exposures has his waste products sent into the blood circulation in dosage. The daily exposure is itself a tissue arouser and tonic.

No biological worker now-a-days denies organic evolution, but for the reason that the "how" entirely dominates the "why" it has not been pushed into the explanations of purposeful phenomena. From the inception, there were certain forces that act upon organic growth and will continue to act for all time.

Shall we ever know the full meaning of "sunlight" giving us light

and darkness; air with its varying shades of dissipation of heat from objects; and the medium of vibrations; the changing seasons with their variation of heat and cold; the cold and warm rains cleansing the air, plants and animals, and furnishing fluid for internal use to all? What a cluster of blessings. Try them on the human organism, and everyone plays on its cutaneous surface. Without the sunlight we had no eyesight, without vibration in the air we had no hearing, without the whole group we had not our cutaneous sensations.

In the open-air, sunlight, and forced feeding treatment of phthisis, we go back to the primal forces of organic evolution, and we have staggered upon them not by intelligent grasp, but by accident. Have we conceived the full range of possibility of the skin as an inaugurator of impulses and movements, and the uses of these in maintaining normal health, and in treating disease? We use in typhoid fever, the cold bath and secure rhythmic discharge in dosage of the harmful toxines and of defensive proteids into the blood circulation. In typhoid fever the height of the temperature is merely the indication, the reduction merely the accident of the treatment. We use massage to move stagnant lymph in conditions of neurasthenia, melancholia, Glenard's disease and other forms of mal-nutrition.

The relation of the modern treatment of tuberculosis to the lymph system is easily indicated. The forced feeding enables the cells' inherent activity to obtain the material for the formation of the defensive proteids. The sunlight and fresh air stimulates the skin not hourly, but almost continuously to activity, that defensive proteids may constantly flow into the blood stream to enable the long drawn out battle to be won on the side of life. Stagnation of lymph can occur from both warmth and cold. This is overcome in typhoid tubbing by friction.

If one concede so much to the skin as an inauguration of defensive process, what shall we concede to the great master tissue, the central nervous system in this regard. The influence of mind on the body has not yet attained its full recognition in medicine. The invigorating effect of sane courage in arousing the whole bodily forces is a medical axiom from the beginning of time.

> "Know then, whatever cheerful and serene
> Supports the mind, supports the body too.
> Hence the most vital movement mortals feel
> Is hope; the balm and life blood of the soul."

The splendid practice of training the sick mind is far too little used. The neurotic should be taught to cease complaining, to minimize his actual objective symptoms and to train his body and mind to gradually

increasing periods of alertness as well as periods of absolute repose. Had this been more generally done by the profession there had not arisen in the land a cult who appeal to the mystical to heal disease.

I shall not stay to discuss the relation, which exercise, inflammation, hypertophy, atrophy and repair bear to this hypothesis. You will doubtless see that our attention must be fixed on cells, and the best method of securing their fitness to fight morbid changes. Chemistry and physics give many phenomena a meaning adaptive to our understanding, yet there are innate properties in cells put there by evolutionary factors that must be baffling to all science.

As one understands more of the whole biology of the human body he turns less to drugs for curative agencies. The body must be considered as a community of cells, and as a united state possessed of a wonderful ability to organize its land and sea forces. All therapy must be measured by its effect on the organization of these forces. In treatment, the great object is to make the human body into the very best fighting machine against the invading enemy, primary or terminal infections. More terrible to a waiting camp than the enemy's weapons are water and food famine and stagnant sewerage. Mal-nutrition and stagnant lymph mean to the human body what famine, polluted sewerage, and destroyed ammunition mean to a regular army, capitulation without terms.

In conclusion, I trust your curiosity has been aroused, for my attempt has been merely to lead you to a hill-top in this new continent of thought, and to point out the complex landscape and the open roads. It may be true the valleys are hidden with mist, and the mountains with clouds and the soil is yet to be enriched by the growth and decomposition of thousands of ideas, but, nevertheless, this is the land that will yield us fruit, the eternal biological verities.

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SKIN-GRAFTING IN OPHTHALMIC SURGERY.

BY

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We all know that ophthalmic surgery presents many opportunities for the useful application of skin-grafting in both mucous and cutaneous surfaces, and that our work in this field necessitates extreme accuracy in order to insure reasonably good results. In any event, it will be conceded that upon this subject the last word has not been said. It is often desirable—I may say, indispensable—that we employ as much of the skin texture as possible in order to minimize the tendency to subsequent shrinking and loss of pliability; this is a totally different matter from the mere restoration of epithelium to a widely denuded surface, which may be accomplished by the use of extremely thin shavings from the skin surface, or even by scrapings, but for such a purpose ophthalmic surgery has no use, since there is always a necessity for the transference of skin of substantial quality and thickness. This necessity carries with it all the elements of failure, just in proportion to the size and thickness of the graft; we cannot, however, afford anything less than complete success at the first attempt, because the parts are not likely ever again to be in a condition so favourable for obtaining a perfect result, as they were the first time the operation was performed.

By complete success I mean re-covering of entire raw surface with integument, which unites immediately and permanently without the slightest flaw or loss. Judging from the published records of such work the difficulties in the way of obtaining satisfactory results are very great and failures have been many. The causes of failure may be summarized as follows:—(1) The size and thickness of the graft may be so great that it fails to become nourished sufficiently and so perishes through lack of vitalizing power. (2) Imperfect coaptation, so that some part of the new skin fails to seure nourishment. (3) An imperfectly prepared surface, especially as to arrest of bleeding. (4) The parts may not be sufficiently aseptic. (5) Accidents or injury before healing is well advanced. Failure from the first of these causes can fairly be attributed to an error of judgment on the part of the operator; failure from the third and fourth implies an error in technique; from the fifth, a want of proper care in the after treatment. There remains for consideration only No. 2, and this is by far the most important of all. The problem to be solved is how can perfect coaptation best be secured. In this connection the fact must be recognized that every skin-graft

consisting of more than a mere epithelial shaving, tends to roll in upon itself towards the cut surface. This tendency cannot be controlled by merely laying the graft upon a raw surface, nor can it be perfectly overcome by fastening the graft in its place with stitches, since the intervening portions between each stitch will continue to turn inwards. Now this unfortunate tendency becomes a fatal obstacle to union at the edges of the graft, and in addition a sort of sulcus is formed in which fluid exudate collects and readily becomes septic, besides separating the graft more from its base and source of nourishment. In order to overcome the difficulties arising from this peculiarity of the skin, I sought for some means to make it stay in position with an absolutely perfect spread throughout. For this purpose I found ordinary silk isinglass plaster entirely satisfactory; some experience is required in order to secure the maximum adhesive quality of the plaster just at the right moment. I find it best to have the plaster cut in convenient strips, a certain area of which is carefully moistened just enough to make it very sticky, then the graft, cut as nearly as may be to the size required, is transferred dry from the razor with its epithelial surface on to the plaster; then with a silver curette it is stroked and spread until completely adherent. When this is done, both skin and plaster may be trimmed with sharp straight scissors exactly to the size and shape desired. If the surface be large it may be covered by several neatly trimmed pieces of skin prepared in this way. Over the whole I next place a piece of cargile membrane, dust with finely powdered iodoform, pad with cotton wool in such a way as to secure gentle, but tolerably firm and uniform pressure.

Skin-grafts applied in this way after Thiersch's method, even when large do not fail, they all survive and adhere perfectly to the surface, this, too, when applied where mucous secretions may be present and would otherwise lead to infection and destruction of the graft. There are two distinct classes of cases in which skin-grafting is required in ophthalmic surgery; the first of these and by far the more common is when the skin of the eyelids is deficient, and the defect may best be repaired in this way, that is to say when sliding flaps are not available; the second is where the conjunctiva is at fault and requires to be repaired by some sort of integument, either skin or mucous membrane. Such a requirement occurs in certain cases mostly of traumatic origin, in which the palpebral and ocular portions have become adherent, and also in cicatrical contraction of the conjunctival sac, such as takes place from persistent wearing of an artificial eye, long after it has become roughened by continued use. The method is applicable in all cases suitable for this form of plastic surgery. There are one or two points in

regard to preparing the surface to be grafted upon, that invite further remarks. In the first place, it is entirely essential that all bleeding has ceased before the grafts are applied; strict asepsis at every step is also indispensable. Then again, the surface should be put upon the stretch if need be by sutures through adjacent parts, which may be attached to adhesive plaster on the surrounding surface, an arrangement, of course, of a temporary character; for instance, in repairing contractions of the empty conjunctival sac, it may be necessary to do a canthotomy at the outer canthus, and draw the loosened lids strongly upwards and downwards by sutures passed through them and attached as indicated. Lastly, when the grafts are in place great care is necessary in applying a bandage with the double purpose of protection and of making gentle and uniform pressure so as to prevent the hæmorrhage of reaction.

There is nothing in ophthalmic surgery, at least in the writer's experience, more gratifying than the perfect results obtainable from skin-grafting carried out in the manner just described.

THE INTER-RELATIONS OF DIABETES AND OTHER CONSTITUTIONAL STATES.

BY

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The great error dominating conceptions of disease in their clinical and thereapeutic aspects is that which fixes upon one symptom as a test of disease rather than the symptom complex. Perhaps in no disorder is this better illustrated than in diabetes. The predominant symptom of diabetes is glycosuria. This condition may not only be an expression of many diseases, but may be at times merely the result of excess in carbo-hydrates. Glycosuria occurs in all the neuroses, not as a complication but as an expression of metabolic instability resultant on nerve disturbance.

The vaso-motor nerves of the liver have their origin in the floor of the fourth ventricle and pass through the cervical and upper dorsal regions of the spinal cord, the rami communicating opposite the fourth or fifth dorsal vertibræ to join the sympathetic and enter the liver as the hepatic plexus. Injury to the fibres at their origin in the fourth ventricle, in any part of the spinal cord, or of the sympathetic itself is followed by glycosuria. Conditions such as express themselves in glycosuria and allied sub-oxidations readily occur in the neuroses. Hysteria may be complicated for instance with glycosuria of transitory or prolonged duration, which may eventuate in coma of an apparently

diabetic type, but disappears with the disappearance of the most marked hysterical symptoms. The great neuroses, paretic dementia, locomotor ataxia and epilepsy, occasionally display temporary glycosuria.

Delirium tremens and the confusional insanities may at times have a temporary glycosuria. Every one of the febrile conditions may be glycosuric. Conditions in which respiration is involved are often accompanied by glycosuria. Pregnancy being a condition in which there is over nutrition, faulty elimination and resultant imperfect oxidation is often attended by glycosuria. The patient may be glycosuric only during pregnancies. Glycosuria may come on during pregnancy and be present during the period only, or it may occur immediately after pregnancy is terminated and may recur sometime after and may remain for a long time after pregnancy and then suddenly disappear.

Gout and insanity of the auto-toxic types frequently alternate with glycosuria. During the mental disease, or during the gout glycosuria is absent, and its reappearance is an indication of recovery while its disappearance is the precusor of an attack. What is true of glycosuria is likewise true of the states allied to it, acetonuria, etc. Every one of the acids from sugar metamorphosis, may be formed in the urine of persons with depressed mental states, after the apoplectiform and epileptiform attacks of paretic dementia, the crisis of locomotor ataxia and the status epilepticus.

Independently of the symptom complex diabetes, there are states of which glycosuria is a symptom consequent on suboxidation, which they produce, that are temporary in character and have not the permanency characteristic of the disease diabetes. Many neuroses, however, are an expression of the suboxidation states constituting diabetes. In all of these, glycosuria may disappear just previous to cerebral complications. The disappearance of glycosuria very often is an expression of imperfect elimination through renal insufficiency rather than a disappearance of sugar from the system. In a diabetic patient in a severe state of hyper-glychemia, sugar may be absent from the urine, yet the patient may pass into acidosis with resultant coma. Neurotic manifestations of diabetes comprise lesions of motility, of general and special sensibility of the intelligence and of trophic functions. Among the most marked motor manifestations are fatigue, lassitude, and deprivation of muscular energy which does not depend upon muscular weakness pure and simple, but may strongly suggest an affection of the medulla. It is not always well marked. It may suddenly disappear to return as suddenly, and may first occur in consequence of a slight traumatism. Apoplexy with complete coma may occur, followed by hemaplegia, recovery from which may be rapid and complete.

Sometimes there is sudden loss of consciousness which disappears so rapidly without resulting paralysis as to suggest epileptic states. Vertigo sometimes occurs alone, and sometimes precedes paralysis. Paralytic symptoms occur without loss of consciousness. Hemiplegia may be attended by very bizarre phenomena. In one cases a left hemiplegia was accompanied by a monoplegia of the right eyelids. Monoplegias are very frequent in diabetes and are apt to be extremely transitory. Paralysis of the right arm and face, ptosis, pupil dilatation, strabismus, and hesitancy in speech may follow glycosuria. While speech disorders are generally due to buccal dryness, yet true aphasia occurs, and aphonia from laryngeal paralysis is far from exceptional.

Imperfect muscular co-ordination in the dark, attended by formication in the extremities may lead to a suspicion of locomotor ataxia. Cramps of the akinesia algera type frequently attack the lower extremities, especially at night and play an important part in the production of insomnia, being often the first indication of cerebral circulatory disturbance and may be precusors of serious complication. Convulsions may be associated with coma, or may accompany paralytic phenomena. At times they present the monoplegic epileptic character and alternate with transitory paralysis of the same side.

Diabetic vertigo often assumes an epileptoid character. Asthma, exopthalmic goitre, and other respiratory neuroses are not infrequently temporary expressions of diabetes. Underneath them and many diabetic neurotic states, lies the "air hunger" of the tissues which is simply their expression of the need of oxygenation.

Diabetic absorption of oxygen as Voit, Peltenkoffer and others have shown, is much less than the normal, and decreases till toward the end of the disease when it is hardly half the normal quantity. Carbon dioxide exhaled is proportionally reduced. This oxygen decrease Sajous ascribes with much plausibility to supra-renal disorder. Increased supra-renal activity, as Croftan has shown, can so augment the ferment producing power of the pancreas as to greatly increase sugar elimination through increase of the amylolytic ferment supplied by the pancreas which converts the liver glycogen into dextrose.

Herein lies the explanation of neuropathic glycosuria and of diabetic neuropathies. In the first, the cause is primarily in the cerebro spinal system. In the second, the system composed of the liver, pancreas, spleen and adrenals is first affected, and the resulting toxic products because of disordered oxidation, cause the nervous symptoms.

The most furibund symptom of diabetes is coma. Under this title are included many conditions, varying from mental depression, through apathy to stuporous states with or without absorption in agonizing

dreams or delusions. One of the most distressing conditions of partial stupor is that attended by psychic nausea where the nausea conception is intense, but unattended by gastric disorder. Cases of this type often occur just after seeming coma, the patient refusing treatment because he believes his stomach is too squeamish to retain medicine. As the mental state is attended with loss of determining will power, like most depressional, stupurous or apathetic conditions, this psychic nausea and its effects are readily overcome by large doses of a saturated solution of sodium bicarbonate. Tablets should not be given as they irritate the throat, thereby increasing the strength of the psychic nausea.

Nearly all the mental features of coma and its allies just mentioned, centre, like all depressional mental states attended by acidosis, around the medulla oblongata. This is the origin of the cardiac, pulmonary and gastric instabilities which occasion such alarming features in the comatose and apathetic conditions of diabetes. The starting point of these disorders is central not local. The cerebral centres of the lungs, heart and stomach being disturbed, local excito-motor ganglia have undue play and become exhausted. Resultant local disorders underlie the diabetic endocarditis, diabetic myocarditis, diabetic phythisis, diabetic gastritis, etc. Diabetic skin, and diabetic tissues are, moreover, predisposed to microbic attack.

The etiologic moment of coma, comatose and stuporous states consists first of the condition of the patient at the time of the attack, and depends largely upon the condition of the emunctories. The kidneys may be in good condition themselves, yet because the intestines are acting imperfectly with fecal resorption, the kidneys are overworked, as is shown by the presence of an excess of indican and urea in the urine. Secondary to this occurs renal insufficiency with resultant acidosis from retention of imperfectly oxidized sugar products.

Given the muscular changes which produce B—hydroxybutyric acid, acidosis production with decreased elimination is intensified. The skin in diabetes is very deficient in eliminative power which adds to the work of the kidneys. The lungs cannot quite supply the oxygen ordinarily needed, not to speak of the increased amount required for diabetes, much less can they oxidize products unphysiologically eliminated through them. The lack of oxygen increases depression and apathy, which in turn decreases cardiac and lung energy. The liver has its nerve energy lessened, yet has increased poison destroying work thrown upon it. The diabetic patient when elimination is lessened is in a very serious and unstable condition which the slightest shock will jar into coma, a comatose state, an epileptiform or apoplectiform convulsion. The premonition of these is generally given by lessening polyuria, sup-

pression of urine, or by the finding of cylindroid casts, then, hyaline or granular casts. Albuminuria *per se* often means merely the urethral or prostatic irritation of diabetes. These as predisposing to microbic attack are of serious augury, but not as to coma, etc.

The sudden disappearance of sugar or sugar acids with increased casts is ominous of renal insufficiency and resultant toxæmic cerebral states.

Another part of the etiologic moment is the condition of the arteries, whether due to diabetes, age, lues, rheumatism, gout, the exanthemata or mental or school overstrain.

Apoplectic extravasations during the coma, epileptiform or apoplectiform states may here lead to permanent mental or nervous disorders.

Hereditary defect may show itself in the etiolologic moment peculiarly at the periods of stress: 2 to 6, 12 to 14, 14 to 25, 45 to 55, and from 60 on, when the system is undergoing evolution or involution.

There are many eye, ear, nose, throat, gums, skin, and genito-urinary phenomena found in diabetes which bear one of these relationships to the disease. They are an outcome of diabetes and are modified by it, or modify it, and finally they may be mere coincidences.

The common erroneous assumption that morbid states occurring during a diathetic state are due to it, is peculiarly accepted as to diabetes. While there is more truth than usual in the assumption as regards diabetes, still treatment of these local conditions will often do as much to relieve diabetes as treatment of diabetes does to relieve them.

The so-called "reflex" disorders exert their influence on the general constitution through continuous nerve irritation producing nerve waste and resultant autotoxemias, which, as has been shown are a peculiarly dangerous addition to the general burden of the diabetic. Treatment of all these conditions is required not only from the local standpoint, but likewise from the constitutional. This is especially true of the eye, ear, skin, gums, and genito-urinary system, whose disorders are certain to add to the atmosphere of worry, resultant nerve waste, and consequent toxic strain on the emunctories into which the diabetic is plunged.

Clinical study demonstrates beyond doubt that most cases of diabetes are at first expressions of nutritional and assimilational instability. In consequence of the overstrain on the liver, adrenals, pancreas, spleen and kidneys, what were at first merely biochemic changes in these organs becomes permanent pathologic lesions, continuing constantly in excessive sugar manufacture without proper oxidation or elimination.

PERITONITIS OF UNKNOWN ORIGIN.

BY

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More frequent and complete autopsies and a fuller knowledge of bacteriology have done much towards demonstrating the various infections of the peritoneum. While one may say without much fear of contradiction, that no peritonitis has started spontaneously, yet there remain a few cases occurring usually at long intervals in which the source of the infection cannot be determined at the autopsy. Osler reports 12 such cases in 102 autopsies, and in 175 post-mortem examinations made in the Montreal General Hospital on patients dead from peritonitis, there were five in which the cause could not be definitely determined.

Infections of the pleura and pericardium are not always traceable, but the operator or pathologist can generally put his finger on the source of peritoneal infection. The five cases occurring in the Montreal General Hospital in which at the autopsy no cause could be found, were all females. In two of these five cases death was due to a widely generalized streptococcic peritonitis. In one of them the oldest condition seemed to be a pocket of pus running along the posterior border of the pancreas. The spleen was small and there was cloudy swelling of the liver. In the other the spleen was soft and pulpy. There was no ulceration of stomach or intestine, and the liver, gall-bladder and ducts were normal, the uterus and tubes healthy. The right ovary was cystic with greenish contents, looking like a deposit of blood pigment.

In the third case the bacteriological report was "infection by diplococci, apparently pneumococci." In the remaining two cases the bacteriological finding is not recorded. In only one was the streptococcus found in the fallopian tube and in none was it found in the cavity of the uterus. The fact that all the cases were in females is suggestive, and it is quite possible that a more thorough and systematic search would have found the same organism present in the uterus and tubes as was found in the peritoneal fluid. The vagina, uterus and tubes would seem a likely way of entrance, and these organs should certainly be most carefully examined bacteriologically in all cases where no obvious cause is present.

I have operated upon two cases of peritonitis where no cause could be found at the time of operation, and fortunately the patients recovered and escaped the more critical examination of the pathologist. The first was a married woman, 29 years old. She had attended a skat-

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ing party whilst menstruating, and on returning home suffered from acute abdominal pain with vomiting. I saw her the following day. She had an anxious expression of countenance, a temperature of 102½, a rapid hard pulse, marked tenderness over the lower abdomen, and a very considerable degree of rigidity of the abdominal wall. During the succeeding forty-eight hours the symptoms rather increased in severity. At the end of the third day of the attack it was decided after consultation with one of my colleagues that operative interference was called for. The diagnosis was peritonitis involving the pelvic and small intestinal area, arising probably from the appendix vermiformis.

On opening the abdomen the peritoneum covering the small intestine was found much reddened. There was a good deal of sero-purulent fluid present and some lymph. The appendix did not seem to be more involved than other parts. It was removed, on the ground that there might be more disease within than was apparent on the surface. A careful search failed to find any other cause of the peritonitis. The pathologist reported that there was no growth from the fluid. The appendix was normal except the serous covering, which was inflamed. He did not think the infection had taken origin from that point. The patient made an uneventful recovery. The cause of the attack is yet undetermined.

I will very briefly report one other case, that of a boy 5 years old. On May 2, 1903, he developed a pain in the left side of the chest, some cough without expectoration, and vomited on three occasions, a greenish bilious matter. His family physician, a most capable and painstaking man, thought there must be a pneumonia, but repeated physical examination failed to locate it, or even to demonstrate its presence. On the third day of his illness the vomiting recurred with great pain in the epigastric region, and general abdominal tenderness and rigidity. The abdominal symptoms were so severe that I was asked to see the child. His temperature was then 102; pulse 124, and respirations 44. The abdomen was hard, tender, and rigid, and the physician who had been watching him assured me that there was some rounding up of the abdomen. It certainly had that appearance. There was present a hacking cough, but no expectoration. The lungs were resonant on the right side to the 6th rib, and on the left side to the 4th rib in front, and to the 10th rib on both sides posteriorly. There were a few moist crepitations at the base of the right lung, in front, and a dry to-and-fro rub was heard at the angle of left scapula; the liver dulness normal, spleen not enlarged.

On opening the abdomen the appendix was apparently perfectly normal, and so were the coils of intestine that came in view. There was

considerable non-purulent fluid in the pelvis. On drawing down some coils of intestine from above, they were found to be of a bright red colour, and in places partly covered by lymph, and on separating the coils considerable opaque fluid escaped. There was no perforation of the stomach to be made out. There was no fat necrosis. After thorough irrigation with hot normal saline solution the abdomen was closed without drainage. The boy made a perfect recovery. On the 16th day after the operation the temperature, having been practically normal during the whole time, suddenly shot up to 104 1/5 and the pulse to 160. It returned to the normal line the following morning and remained normal afterwards. The cause of the elevation was not apparent. The interest in this case is materially lessened by the fact that in some unaccountable way none of us thought of taking a culture at the proper moment. The cause of the peritonitis is here again, undetermined. Repeated careful physical examinations failed to detect pneumonia.

That peritonitis may occur in croupous pneumonia is well known. The Montreal General Hospital report No. 81, 1899, is an example. In addition to a double lobar pneumonia there was present a generalized peritonitis, due to an infection by diplococci. That it does not occur more frequently is remarkable, when it is remembered that in these cases the pneumococcus exists in the blood.

It would seem to be pretty well established that other etiological factors than infection enter into the resultant which we call peritonitis. The peritoneum is sometimes spoken of as a large lymph sac. It certainly has a wonderful capacity for rapid absorption, a quality which has a most important influence in the development of peritonitis. Wagner, Grawitz, Paulowsky and other experimenters have shown that many pyogenic organisms and foreign substances may be introduced into the peritoneum without apparently doing any harm. If, however, the peritoneum is previously injured, or a large quantity of virulent organisms is introduced. then peritonitis follows. The same result ensues when repeated infections are made, as shown by Tuffier, who found from experiments upon dogs and guinea pigs, that urine alone or mixed with blood could be injected into the peritoneal cavity without causing peritonitis. If, however, the ureter was transplanted and so arranged that it continually dropped urine, peritonitis developed slowly and the animals died in 8-20 days. The urine gradually softens the peritoneum and renders it vulnerable. Reichel concludes from the experimental work of Wagner and Grawitz and from a study of 174 laparotomies done at the Kgl. Universitäts-Frauenklink zu Berlin, that in every laparotomy a certain number of micro-organisms gain entrance into the abdomen. When no unpleasant results follow, one may thank

the resisting power of the patient. This resisting power may be overcome by large or repeated infections, accumulation of infectious material in dead spaces and a lessening of the normal absorption and transudation processes.

How do these theories and experimental results harmonize with our clinical experience as physicians and surgeons? Two recent cases in the hospital wards may possibly illustrate my point. One of my colleagues recently had to do with a case closely simulating acute appendicitis. It was that of an adult male with pain and tenderness over the lower abdomen with some vomiting and elevation of temperature. A mass was felt in the right iliac region which could be palpated by the finger in the rectum and the hand over the right pelvic region. Incision revealed a solid tumour, which proved to be a sarcoma, growing from the border of the ileum about four inches above the ileo-cæcal valve. There was considerable yellowish turbid fluid in the pelvis, and a hyperæmic condition of the visceral peritoneum with a few flakes of lymph. What caused the peritonitis?

The other case occurred in my own practice. A young man 24 years of age had felt a good deal of pain in the abdomen for several weeks. At first it was felt more particularly in the epigastric region, but latterly in the lower abdomen. Ten days before I saw him in consultation with Dr. Wilkins, his family physician, he had had a rigor. Another rigor occurred the day of our consultation, the temperature rising to 103½F. During the previous fortnight the patient had vomited several times.

On examination one first noticed the very anxious facial expression. The abdomen was somewhat tender over the pelvic area, and by the rectum one felt indistinctly a mass high up behind the bladder. On pressing in this direction the patient cried out. It was very tender. There was no tenderness over the region of the appendix. The presence of a localized peritonitis was obvious. On making an exploratory incision, there escaped fifteen or twenty ounces of a yellowish turbid fluid. The appendix was apparently normal. The coils of intestine that presented were highly injected. On separating them I came down upon a large retro-peritoneal mass situated between the layers of the mesentery and extending from two inches above the level of the umbilicus, down over the brim of the pelvis, within the layers of the mesentery pushing a coil of intestine down into the pelvis, along both borders more especially on the right side. Coils of intestine were joined to the borders of the mass by inflammatory adhesions. Lymph was spread over these adhesions. Here again, what caused the peritonitis? It may, I think, be granted that in each of these cases the circulation was more or less disturbed. The disturbance was probably of an obstruc-

tive nature acting on the soft walled veins returning the blood from the intestines. The circulation in these parts was impaired and a *locus minoris resistential* established.

In another interesting group of three cases a fatal streptococcus peritonitis developed. One of the patients was a young lad. In none of these cases could a cause be found, save that in all three, there were found enlarged retroperitoneal tubercular glands, one or two of them being in a state of caseation. The peritoneum over the glandular masses was not broken, it was not opaque or thickened, but in colour, thickness and in general appearance quite normal. In these cases an obstruction to the circulation in the lymph vessels evidently was present. These obstructive conditions involving the blood or lymph vessels, or both, must necessarily lessen the excretory power of the peritoneum, possibly also the transudation, to say nothing of the toxines developed within them.

Pneumococcic peritonitis is a rare condition probably not occurring in more than 1 per cent. of cases. What is the determining etiological factor in this small group? In a recent article, Jensen points out that the penumococcus may be brought to the peritoneum from the pleura through the diaphragm, by way of the blood stream, from the genital organs, from the intestinal canal or from other abdominal organs. The determining influence so far as we can say at present probably lies in a lessened resisting power of the individual. This in turn may, so far as the peritoneum is concerned, be an influence that disturbs the circulation, particularly in the direction of producing stasis of the blood or lymph streams. I think that the experimental work done has thrown a flood of light on many of the questions connected with this important subject.

We are beginning to realize the very great difference in the extent of surface involved and in the virulence of cases of both acute and chronic peritonitis. The etiological factors being so varied and numerous, the result could hardly be otherwise. In fact the more one studies peritonitis the more one feels inclined to accept the suggestion of, I think, a French writer, to abandon the term peritonitis and adopt that of "infection of the peritoneum."

I think also that our hands are strengthened in dealing with this condition. The importance of strict dietetic regulations, and so far as possible, of establishing a healthy condition of the intestinal tube becomes obvious. Early operative interference in cases of pneumococcic peritonitis that presents symptoms of severity, which do not yield to other means should be treated surgically. These cases are sometimes severe and may end fatally if not relieved.

In gonococcic peritonitis the prognosis without operation is probably

better. The difficulty, however, is to differentiate before an incision and bacteriological examination.

There is a group of cases in which I have been much interested—cases in which peritonitis develops after child-birth. In 1894 I reported five cases, in four of which I myself operated, one case being operated upon successfully by my confrere, Dr. Perrigo. These cases are of great interest for two reasons : first, they demonstrated that many of these women may be saved, that the lesion is extra-uterine, although intra-peritoneal and involving the tubes and ovaries rather than the uterus; secondly, in one case, the lesion giving rise to the alarming symptoms was not connected with the generative organs at all. I feel quite sure that there are a few of these post partum infections of the pelvic peritoneum which are primary and might with advantage be dealt with by the surgeon.

SURGICAL TREATMENT OF TYPHOID PERFORATION OF THE BOWELS—WITH REPORT OF FIVE CASES.

BY

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In submitting the following brief histories of five cases of perforation of the bowel in typhoid fever, upon which I have operated during the past seven years, I am assuming that it is not now necessary to justify the operation. Our duty lies in carefully recording in detail the salient features in each case, that we may learn to recognize the condition at the earliest moment, and having done so, the operative technique which will give the best results, and the percentage we may hope to save.

Of the cases now presented, two are reported in the statistics published by Keen[1]; four, including the above mentioned, in a paper by Armstrong,[2] covering all operations performed in the Montreal General Hospital for this condition up to May, 1902; the fifth, my first successful case, is now recorded for the first time.

Case 1. H. C., male, aged 19 years, admitted to hospital August 26th, 1897, the eighth day of the illness; strong and healthy previous to the onset the early symptoms of which were diarrhœa and slight vomiting.

On admission there were rose spots present over the abdomen, enlargement of the spleen, and high temperature. The treatment included cold baths.

Read before the Canadian Medical Association, August 26th, 1903.

[1] Surgical complications and sequels of typhoid fever., Wm. Keen, Philadelphia.

[2] Annals of Surgery, Vol. 56, Geo. E. Armstrong, Montreal.

On the 16th day of the disease there was some general abdominal pain, associated with slight vomiting and diarrhœa; one stool contained a small blood clot. Cold bathing was discontinued and tepid sponging carried out.

On the following, or 17th day, perforation occurred. At 3 a.m. there was a sudden onset of pain in the lower zone of the abdomen. This was accompanied by a fall of temperature and increase of pulse rate. During the day rigidity developed. There was no distension; opium administered; operation 19 hours later.

The abdomen contained free pus and liquid fæcal matter. A large ulcer with ragged edges was found in the ileum, six inches above the valve. Death followed in twelve hours.

Case 2. Z. C., male, aged 19 years, admitted to hospital August 12th, 1897, the 10th day of the illness. Perforation occurred on the 30th day; operation 13 hours later; acute general peritonitis present with free pus and fæces. Ulcer was found in the ileum close to the valve. Death followed in ten hours.

Post-mortem examination showed general peritonitis, although the suture line of the gut held a 32-inch column of water.

Case 3. J. C. W., male, aged 20 years, admitted to hospital October 27th, 1899; ambulatory typhoid. There was well marked general peritonitis present on admission, temperature subnormal, pulse 130. Operation was performed at once; ulcer was found in the ileum close to the valve. Marked improvement in the abdominal symptoms followed the operation, but patient succumbed to the general toxæmia two days later.

Case 4. W. C., male, aged 29 years, ambulatory typhoid, admitted to hospital October 4th, 1900, the 9th day of the disease. Onset was with diarrhœa and vomiting; Widal reaction present; temperature high while under observation; cold baths not used; perforation on the 12th day. At 2 a.m., patient was seized with severe pain in the hypogastrium, gradually extending over the whole abdomen, slight vomiting four hours later, no marked change in temperature or pulse rate, tenderness and rigidity quickly developed in the right iliac fossa. Operation within six hours. Acute general peritonitis was present with free pus and fæces. There was a large perforation in the ileum. Bacteriological culture showed colon and typhoid bacilli. Death twenty-four hours later.

Case 5. E. C., male, aged 33 years, ambulatory typhoid, admitted to hospital December 30th, 1902. For some months previous patient had been using alcohol somewhat to excess.

The onset of the disease was insidious and patient was not seen by his physician until a few days before admission. He then had typical

and active symptoms, but could not be induced to remain in bed. On admission it was considered the disease was in its 12th day; temperature 104; perforation on the 13th day.

At 5 o'clock in the morning, or seven hours and a half after admission, patient developed severe abdominal pain, limited to the right side, with rapid fall of temperature and increase of pulse, accompanied by vomiting and diarrhœa. Immediately there was well marked tenderness and rigidity in the right iliac fossa. Operation was performed within two hours. Free sero-purulent fluid and fæces were found in the peritoneal cavity, a large ulcer in the ileum, four inches above the valve, involving nearly the whole circumference of the gut, with a pinhole opening in the centre. Bacteriological culture showed mixed infection. A few hours subsequent to the operation, abdominal symptoms had disappeared, and during the following three weeks the case ran a typical typhoid course, developing rose spots and enlarged spleen, Widal reaction present; good recovery.

A word of praise is due to the night nurse on duty, and to the Medical Superintendent, Dr. Wm. Turner, for the prompt recognition of the perforation in this case, which enabled me to perform the operation without any loss of time. The operative technique was the same in each case. Ether was administered. The median in the early and the oblique lateral incision in the later cases were employed. The ulcer folded in. Lembert sutures of silk were used. The peritoneal cavity was irrigated by saline solution, and the abdomen closed, a drainage tube being left.

In this case, in addition, after the abdomen was closed, the cavity was filled with saline solution through the rubber drainage tube, which was then clamped, retaining the fluid within the cavity. The abdomen was kept covered with four or five large ice bags during the first few days subsequent to the operation.

In Dr. Armstrong's paper, before mentioned, 34 cases were operated upon, of which five recovered; in addition one other survived the perforation and consequent abdominal disturbance, but died later from typhoid toxæmia, showing 18.18% of recoveries.

In my series we have 20% of recoveries. I appreciate that this total is too small to base an opinion upon, still, compared with the larger table above mentioned the percentage practically corresponds, showing if anything that as we add to the list, the percentage of recoveries increases. Dr. Osler has expressed the hope that 50% of cases occurring in hospital should be saved. Dr. Cushing has suggested that a distinction should be made between cases operated on for perforation, and those which are operated on after well marked symptoms of general

peritonitis following perforation have developed, and also expresses the opinion that 50% should recover. I presume he means after eliminating the latter class. If this classification were applied to the series just given, I am satisfied we have already reached the 50% limit. Leucocyte count is not recorded sufficiently in my cases to be of any value.

THE SIZE OF THE PUPIL AS AN AID TO DIAGNOSIS.

BY

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The general practitioner, no less than the specialist, notices in almost every case brought before him for diagnosis, the *size,* the *shape,* and the *mobility* of the pupils.

First in regard to the size, they may be contracted, or dilated, or they may be unequal, one being larger than the other. Then in regard to the shape, they may, instead of being circular in outline, be oval or irregular in shape. And in regard to the mobility, instead of reacting to the light (or other stimulus) they may be immovable, or fixed. Any of these changes suggest some abnormality, and it is the object of this paper first, to place on record the principal conditions in which these changes are seen, and second, to assist in the interpretation of these changes.

In order to understand the subject we must briefly glance at the anatomy of the iris; in so far as it has to do with the changes in the shape of the pupils. We will find that nature has provided a special means for the contraction of the pupil, and a special means for its dilatation. In the structure of this very vascular curtain is to be found smooth muscle. The fibres of this muscular tissue are arranged in two directions. First, we find them arranged in a circular manner around the pupillary edge, forming a sphincter of the pupil, and known by the name of the sphincter pupillæ muscle. The remaining fibres are disposed in a radiating manner, constituting the dilatator pupillæ muscle.

But another agency having to do with the size of the pupil is the blood supply. We know that the bulk of the iris is made of vessels, which lie like the spokes of a wheel, but close together. These vessels can be rapidly filled with blood, so rapidly that some authorities speak of the iris as belonging to the erectile tissues. The more the vessels are filled with blood, the smaller the pupil is. Now, without going into the nerve supply of the iris it will be sufficient to say that the sphincter muscle is supplied by the 3rd cranial nerve, the dilator fibres by the sympathetic.

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The size of the pupil, then, is affected in three ways, 1st, by the sphincter muscle of the iris, 2nd, by the dilator muscular fibres, 3rd, by the blood poured into the iris. Anything which stimulates, or irritates, the 3rd nerve will cause the sphincter to contract, thereby lessening the size of the pupil. Anything which stimulates, or irritates the sympathetic nerves will cause the radiating fibres to contract, thereby dilating the pupil. If, however, we have stimulation of the 3rd nerve, with paralysis of the sympathetics, we will have extreme contraction (i.e. pin point pupils) while if we have stimulation of the sympathetic with paralysis of the 3rd, we will see extreme dilatation. What abnormalities or diseases are indicated by these various changes of the pupils?

A. The patient may have the pupils evenly contracted (myosis). This may indicate:—

1. Locomotor ataxia.
2. Meningitis.
3. Encephalitis (early stages).
4. Inflammations of the cervical cord (chronic).
5. Apoplexy of the pons.
6. Epileptic fits (early).
7. Uræmic poisoning.
8. Tobacco amblyopia.
9. Inflammation of the retina.
10. Opium poisoning.
11. The use of myotics (eserine, etc.).
12. Long continued use of the accommodation as seen in watchmakers, etc., (occupation myosis).

B. Where we have the pupils evenly dilated. (Mydriasis). This condition is found in:—

1. Paralysis of both 3rd nerves (as after diphtheria).
2. Intra-cranial tumors (late stages).
3. Intra-cranial effusions (pressure signs).
4. Irritation of the cervical sympathetic.
5. Acute inflammation of the cervical cord or its coverings.
6. As a premonitory sign of tabes dorsalis.
7. Intestinal worms, or other irritant.
8. After epileptic fits.
10. Cataracts.
11. Amaurosis (blindness).
12. Acute mania or melancholia.
13. The use of mydriatics.

C. But again we suppose a patient with unequal pupils, then we may suspect:—

1. Tabes dorsalis.

2. General paralysis of the insane.
3. An unilateral lesion of the 3rd or sympathetic nerve.
4. Diseased tooth.
5. Pain in any branch of the 5th nerve.
6. Old iritis. Inflammation of the right or left retina.
7. Aneurism of the carotid or of the aorta or tumour of the neck of the same side (in early stages this will produce irritation mydrasis, in late stages, paralytic myosis).
8. Use of myotic, or mydriatic, in one eye.
9. An unilateral lesion of the brain.
10. A congenital condition.
11. Acute glaucoma (unilateral).

Supposing any one of the abnormalities spoken of is observed, we at once proceed to see whether the pupils will react to the stimulus of light. This is done by facing the patient to a window (if possible) covering both eyes with the hands, then removing each hand in turn. If there is no dilatation in the shade or contraction on exposure to light, the pupil is said to be immovable, or fixed.

I. The pupils are contracted and *fixed.* Then, taking up the list "A" we may exclude:—

Uræmic poisoning.
Meningitis and encephlatis (early stages).
Inflammation of the retina.
Tobacco amblyopia.
Occupation myosis.

For in all these conditions the pupils are not fixed, the movements, although slight, may be seen.

In list "A" remains:—

Tabes dorsalis.
The use of myotics.
Apoplectic effusions.
Epileptic fits.

The contracted and fixed pupil may be present in any of these.

But the apoplectic, or epileptic, condition, and opium poisoning are usually easily recognized, so that we have only to differentiate between tabes dorsalis and the use of myotics.

The history of the cases would quickly enable us to decide, but the standard methods of examination for a case of tabes (the use of the convergence test, etc.), should be brought into use.

Summing up list "A" it may be said that contracted and fixed pupils point, in the majority of instances, to a case of tabes dorsalis.

II. But the pupils although contracted are movable. The prin-

cipal use of recognizing this condition is that it enables us to be almost sure that we have not before us a case of locomotor ataxy.

III. The pupils are evenly dilated and fixed.

This is a rare condition. Looking at list "B" it may be stated that some movement of the pupils may be elicited in all the conditions named except in blindness (amaurosis) in the use of mydriatics and in complete paralysis of both 3rd nerves.

IV. The pupils are evenly dilated and *movable.* Little need be added to what was said under the last heading. Of course it should be noted that in the last stages of intra-cranial tumours and effusions no movement of the pupils can be elicited.

V. The pupils are uneven but *fixed.*

This condition almost surely points to one of two things—it is either Locomotor ataxia, or it is general paralysis of the insane. The size or shape of the pupil will not help us to differentiate between these two affections, but the history will quickly clear the matter up. Looking over the remaining portion of list "C" it may be stated that in unilateral lesions of the 3rd or the sympathetic nerves the pupil of one eye would be found to react freely; and in affections of the 5th nerve both pupils would react, but the smaller one less freely than the larger. In old iritis care must be taken, for sometimes the adhesions are so extensive as almost to bind the iris firmly down, to a large extent preventing movement. In every doubtful case, a drop of atropine solution should be used. This will solve the difficulty, for the pupil will dilate between the adhesions thus giving a notched appearance to its edge. And unless we have a case of double iritis, the pupil of the other eye will react to light. In all the remaining affections of list "C" movement would be seen in one pupil.

VI. The pupils are unequal but movable. In this condition we would probably find the cause to be a painful tooth or irritation of some branch of the 5th nerve. But the important point here is the fact that this condition of the pupils renders it unlikely that either tabes dorsalis or general paralysis is present.

Summing up the whole matter it will be noticed that, in almost every section, reference is made to locomotor ataxy. One of the most important deductions therefore is, that in every case of abnormality of the pupils (unless the cause is otherwise apparent) it is our duty to examine for locomotor ataxy. If this rule were acted upon, many of these cases would be recognized or discovered in its early stages. When we recollect that much success attends early treatment of tabes, but that little can be done, comparatively, if the case is not recognized until it has passed into the later stages, the importance of this rule becomes at once apparent.

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THE COLLEGE OF PHYSICIANS AND SURGEONS AGAIN.

The proposed amendments to the statutes and by-laws, and regulations of the College of Physicians and Surgeons of the Province of Quebec, at the present time, are a matter for serious consideration. It can scarcely be urged by its worst enemies, if it has any, that the College of Physicians and Surgeons of the Province of Quebec is a lethargic and invertebrate body. It is extremely active, and its activity is exercised in the most varied channels—from a discussion of the merits or demerits of some obscure and unlicensed midwife in a remote corner of the province, to that of the most comprehensive "reform" of medical education. That its activity is sporadic—paroxysmal, would perhaps be a fitter word—can hardly be imputed to it as a fault, for its component members are mostly busy practitioners of medicine, who meet only twice yearly for two days to deliberate upon and decide questions that are of the most momentous importance to their constituents —the general medical body, and the professional schools of the pro-

vince. A few of these gentlemen are men of wide experience in matters of medical education from long connection with well established and widely known faculties of medicine; the majority are "free lances," unattached to any educational institution, but imbued with a laudable desire to do something according to their lights to further the cause of medical education in the province. It is safe to say that most of the actual work done by the board is done through the various committees,—committees on legislation, on education, on revision of by-laws, etc.,—which are chosen at the time of the meeting and hold office until the next meeting of the board, or until their labours are finished. It is also a fact that the said committees meet only at long intervals, sometimes only a day or two before the meeting at which they are to report. That such a method should lead to hasty, ill-digested conclusions is obvious. One need only look at the printed "order of the day" presented to each governor at the opening of the meeting to see that not one day, but at least one month of daily sittings would not be too much to devote to even two or three of the items on the list. But the governors are nothing if not confident of their ability to satisfactorily sift in a few hours a mass of information and detail which a university faculty would take a year to consider and adjust. And the strange thing is that these gentlemen take each other quite seriously, and adjourn in time to catch train or boat with mutual congratulations on the work done. "Ce serait à rire, si ce n'était à pleurer."

The July meeting of this year was conspicuous for the sweeping changes that were brought to the notice of the board as a whole, through the "Committee on the Revision of the Statutes, By-Laws and Regulations." The report of this committee practically includes the reports previously adopted by the committees on preliminary education and on the medical curriculum. Among the principal changes involved in this project of revision of the statutes, by-laws and regulations are, the exacting of the equivalent of a B.A. course (as understood in the French and English Catholic colleges by the term "cours classique complet"), from all candidates for admission to the study of medicine, unless they actually possess a university degree; a five-year course in medicine; the practical abrogation of the clause in its statutes granting the provincial license to holders of the British registration; and, finally, some miscellaneous tinkering with the length and arrangement of the various subjects of the medical curriculum. We have already referred in a previous number of the JOURNAL to the one-sided nature of the first mentioned change—the question of the "cours classique complet"—and have pointed out the unfairness of a scheme that legislates for the supposed benefit of one section of the candidates for admis-

sion to the study of medicine, and neglects the minority. We pointed out incidentally that the Catholic and the Protestant boards of education followed methods that were irreconcilable, one with the other, and that it was not possible to frame regulations that would apply with equal justice to those educated under two different systems. To this we have nothing to add—the objection remains unanswered, and unanswerable, under the present conditions, but the injustice is evidently about to be consummated, for there seems to be no doubt that the clause as amended (Chap. VI., clause 1), will be passed at the September meeting of the board. The amendment calling for a five instead of a four year course of medical studies is one to which no exception can reasonably be taken. It was bound to come sooner or later, in view of the present congested condition of the medical curriculum, due to the multiplication of subjects taught and the longer time demanded by the institution and extension of laboratory courses in all departments. By an unexpected gleam of wisdom the board does not definitely prescribe the scope of the fifth year work beyond suggesting that it be devoted to clinical work, laboratory and special courses. The board, however, need not take to itself great credit for this innovation. The question of a five-year course has been under serious consideration for fully three years in at least one of the provincial faculties.

The "turning down" of holders of the British license has been in the air, so to speak, for a long time. It was always more or less unwillingly, or at least with bad grace that the Provincial Board recognized this qualification. This was partly due to the fact that some of the holders of this instrument had appeared before the board at a prior meeting with inadequate credentials (diploma without "brevet," or some other irregularity), and had been "turned down," only to bob up serenely six months or a year later with the *sesame* and a "reject-me-if-you-dare" attitude. Judging, however, from casual remarks heard from time to time, and particularly from the samples of "fire-eating oratory" heard at the last two or three meetings of the board from some of its members, something more than pique underlies the proposed amendment, and there is a suspicion that the word "British" has something to do with it. We have neither time nor space to return to a detailed analysis of the changes in the medical curriculum. This is a favorite field for the display of the individual governor's eccentricities and his ignorance of what constitutes *modern* methods in medical education. The didactic lecture still reigns supreme, the number of lectures devoted to certain subjcts, e.g., materia medica and therapautics, is absurdly out of proportion, and some of the specialties and minor subjects come in for an undue amount of time, in compari-

son with the fundamental subjects of the curriculum. The whole thing is the work of amateurs, and a "revision" of the "revision" by a really competent committee, who took the trouble to compare the course with those of recognized educational bodies at home and abroad, would result in something vastly different and infinitely more sensible and practical. All the changes in the statutes, by-laws and regulations, above referred to, are not yet finally approved by the board, and even if approved at the September meeting, shall not be law until passed by the Provincial Legislature. May we hope that the much-abused legislators of the Province of Quebec will see more clearly into the needs of the profession and the real interests of medical education than the College of Physicians and Surgeons has done? They certainly could not do worse if they tried.

A RECENT ADVANCE IN HOSPITAL CONSTRUCTION.

During the course of his recent visit to Ireland, King Edward formally opened the new Royal Victoria Hospital in Belfast. This building presents so many novel features, more particularly in economy of space and in cost of construction and maintenance, that, when not a few hospital projects are on foot here in Montreal and elsewhere throughout the Dominion, it is worth calling attention to those features in which a distinct advance has been made. In a large portion of the Dominion climatic considerations would make servile imitation out of the question; yet, the general scheme well deserves study, nor would it, we think, be impossible to introduce such modifications into the plan as would make that plan feasible in Canada.

The ideal sought in every modern hospital is the isolation of the various departments, so that each ward dedicated to one special class of cases is completely cut off from the rest, cut off more especially as regards its ventilation, so that the air from the one does not pass into the other. Theoretically, the so-called "pavilion" system would seem to offer the easiest solution of the problem, and for a time this became, if not the popular, at least the "correct" system wherever funds would permit. St. Thomas's Hospital opposite the Houses of Parliament, in London, is well known as an early and incomplete example of the system. The Johns Hopkins Hospital exhibits (or rather exhibited), the system carried out in fullest detail. But practically the system has shown itself far from satisfactory. In the general hospital of a large city consisting of some three hundred or more beds, to follow the pavilion system and make all the wards on one floor, with, at the most a basement for ventilation and other purposes, demands so much space as to make the cost of the necessary ground practically prohibitive, if

the hospital is to be situated near the centre of the population. By this means the purity of the air in the wards tends to be more assured, and the condition of the patients correspondingly improved, but as an offset the long distance of most of the wards from the central kitchen too often results in the food being served to the patients in a lukewarm condition, and, as a consequence, unsatisfied appetite neutralises the benefit of an improved hygiene. In a northerly climate also, each ward being distinct, with the bed heads between the windows, the cost of heating so many detached buildings would be enormous, and along the outer wall of the pavilion, unless special precaution be taken and a proper and expensive system of air spaces be constructed in the outer walls, of necessity, through the cooling of these outer walls, there would be frequent complaint of a down-draught of cold air blowing upon the heads of the patients. In hospitals in much lower latitudes than ours it is customary for a space of from two to three feet to be left between the outer wall and the head of the bed, a space which either seriously reduces the breadth and usefulness of the central aisle, or demands that still greater expense be incurred by making the wards some five or six fet broader than would otherwise be necessary. Over and above all, the system is expensive, not merely in land, but in cost of construction and of administration. For a general hospital is is found generally impracticable.

As a result of these disabilities a modification of the pavilion system is commonly adopted; to economize space there is only a partial isolation of the wards. Blocks of more than one story are made to include all surgical and medical wards respectively, while the administration and kitchens, are housed in a separate central block. The Royal Victoria Hospital in Montreal is a good example of this modification of the system.

For this modification to be successful, great care has to be taken with the ventilation, and some method of either driving in or sucking out the air from the various wards has to be devised; devised in such a way that each ward can be treated as a separate unit for ventilation and so walled off from the rest that the vitiated air from the lower ward for example, does not escape into the passage ways and so find its way into the wards on another floor. The system of ventilation found most satisfactory at the present time is that known as the 'plenum system.' In this the air is first sucked in by large fans through a moist screen which purifies it, is then heated to the desired temperature and next forced by other fans into a series of passages leading to the various wards, so that the air enters these wards under a certain amount of pressure, and according to the size of the channel and the opening into the wards, according also to the size of the exits from the ward, so is

there afforded the requisite renewal of the air in the wards. At Birmingham, Liverpool, and other large new hospitals in England, this system has been found to afford very considerable satisfaction and, under a more or less modified form, it is employed extensively on this continent. It is, however, found difficult to exactly graduate the pressure and the size of the channels leading to the wards situated on various levels. It is most successful where all are on the one floor. It has to be admitted also that by this block method the expense of building, while reduced, is still considerable, and a large amount of outside wall and window space is apt to cause considerable diurnal variation in the temperature of the wards, requiring constant care of the heat regulation. But the temperature can be properly regulated even in a climate having such considerable variations as our own, as has been abundantly demonstrated in the Montreal hospitals; nevertheless, the regulation is a matter of constant attention. Carrying out the plan first recommended by their architect, Mr. Henman, in the *Builder* of

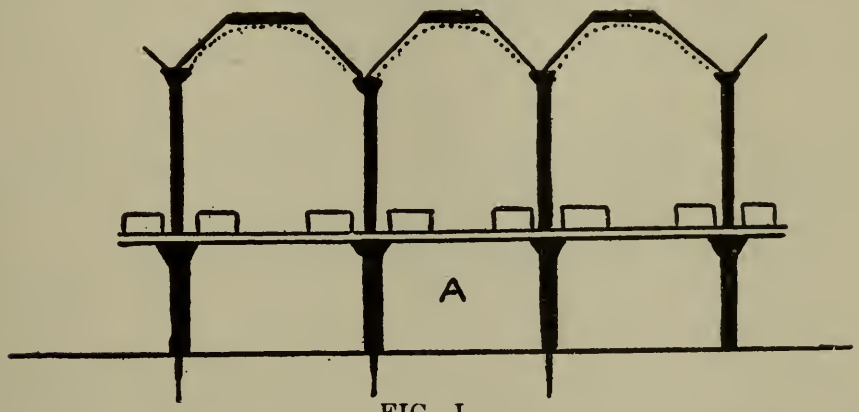

FIG. I.

Transverse vertical section through series of wards to show method of lighting from above. The basement A is utilised to carry the ventilating shafts and heating apparatus.

August, 1896, by what seems to be a wonderfully simple scheme, the builders of the Belfast hospital have overcome most of these difficulties. They have accepted, what for purposes of ventilation is the most important feature of the pavilion system, and have placed all their wards upon one floor; but, instead of making each a separate building, they have placed them side by side so that each side wall serves to support the roof of two wards. This, of course, does away with windows between the beds. These they replace by a row of sloping side lights in the roof, some twelve feet or more above the floor. The outer ends of the wards are practically all window space, beyond which is a balcony and sun parlour. The result is that the wards are bright and cheerful, and also that the downward current of air upon the heads of the patients is almost entirely done away with. We have here roughly sketched these

main features of the scheme. It will be immediately obvious how materially this reduces the cost of construction; as a matter of fact, they have built and equipped, in Belfast, and built well, a hospital with three hundred beds at a cost of £100,000. Thus the main features of the building are (1) that all the wards are upon one floor and built side by side on the south of one long main corridor (2) the lighting of the wards and corridors is provided by roof windows or lanterns; (3) ventilation is by the "plenum" system, each ward is for practical purposes air-tight, so that the air from one cannot pass into the others; (4) the

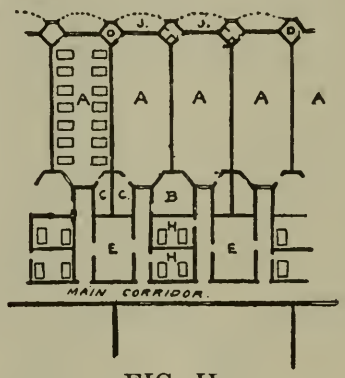

FIG. II.

A., A., A., Wards each containing 14 beds.
B. Ward kitchen serving 2 adjoining wards with windows overlooking each.
C., C., Bath rooms, one for each ward.
D., D., Sanitary Tower, one to each ward.
E, E., Operating room or clinical theatre.
H., H., Wards with two beds, one such ward connected with each larger ward.
J. Balcony.

wards with their accessories are on the "unit" system, each physician or surgeon having a unit, or small hospital, to himself. From the main corridor, 460 feet long, 17 side passages lead south to the seventeen wards. We reproduce the main features of this plan. We may here note that for every pair of wards there is a common kitchen and a separate operating room, class room or clinical theatre, according to the nature of the cases treated in those wards. North of this main corridor are separate blocks for administration, out-patient department, and ophthalmic departments, while the pathological department, the septic and infectious wards, the laundry and engine rooms are in separate buildings.

Altogether this plan seems well worthy of consideration and capable of being applied, not merely for general hospitals but, with complete closure of the main corridor between the separate departments, for the purposes of an infectious hospital. One great difficulty in this climate would be in connection with the roof windows, but it is not very difficult to suggest a method of arranging these whereby they would not become obstructed by snow.

MUNICIPAL SANATORIA FOR CONSUMPTIVES.

At the last meeting of the Canadian Medical Association a resolution was introduced by Dr. E. J. Barrick, seconded by Dr. R. W. Powell, and unanimously agreed to, urging such local action in regard to Municipal Sanatoria for consumptives as would entitle them to govermental aid. The province of Ontario is well advanced in this necessary work. On the 5th of April, 1900, the legislature of that province adopted a bill, which may well be the model for future legislation. The government offered assistance to the municipalities to the extent of one-fifth of the cost of land and buildings, and $1.50 per week for each patient. The legislation was very elastic, and the municipalities were permitted to surround their by-laws with such conditions and restrictions, as would best serve to secure the confidence of the ratepayers.

This great problem of the eradication of tuberculosis is of equal importance with the education of the people, the administration of justice, and is one with the question of the preservation of the public health. No attempt is made to assemble all pupils in one public school, to collect offenders against the law in a single house of detention, or to isolate all infected patients in a central hospital. Similarly, the method for dealing with persons suffering from tuberculosis is to segregate them in municipal institutions, and any scheme which does not take full account of the poor is not worth considering. There are two methods open, the mandatory and the permissive. It may be said at once, in view of the present state of public feeling, that compulsion upon municipalities to establish sanitoria, or upon patients to enter them would not be tolerated.

The first municipality to attempt to avail itself of the provisions of the law was Toronto, and the matter went so far, that the ballots had been printed, when an injunction was granted by Judge Britton restraining the Council from taking the vote. It is gratifying, however, to note that the Act was amended last session making it legal to submit this question at the ensuing municipal elections. Under the by-law, which it was proposed to submit, the city was to be at no expense in connection with the sanatorium beyond the $50,000 to be granted, and the payment of $2.80 per week for each patient sent to it. The sanatorium was to be exclusively for residents of Toronto; it was to be within twelve miles of the city, with 50 to 100 acres of suitable land; to consist of an administration building, cottages and tents, to accommodate patients who had been residents of the city continuously for at least two years immediately prior to their admission, and was to be open to consumptives in all conditions of life and in all stages of the disease.

It was not to be a free sanatorium, as such would encourage pauperism, but those able to pay should pay, and the poor should be treated free of charge. The Board of Trustees was to consist of the Medical health officer and eight other persons appointed by the Council, four of whom should be nominated by the voluntary contributors.

The proposed plan would practically work out as follows: Government grant $4,000; Civic assessment $50,000; Contributions $50,000. For maintenance the government would grant $1.50 per week, the municipality $2.80, and other contributions would come from patients, churches, lodges and other organizations. It is a notable achievement to have passed such a law. In Canada, 8,000 persons die every year of tuberculosis, and it has been proved that this mortality can be decreased twenty per cent. every five years. Beyond this, a municipal sanatorium in each county would be an important local educator, and as the mind of the public became seized of its importance, patients would more readily be persuaded to take advantage of a local institution, where they would not necessarily pass out of the care of their own physician, and out of the reach of their friends, where their chances of cure or improvement would be greatly increased, and the spread of the disease to their friends and the public generally would be materially checked.

We have not progressed this far in Quebec, but with the stimulation of the anti-tuberculosis league, an advance is sure to be made.

THE INTRODUCTORY LECTURE.

The session of the two medical colleges opened without the customary introductory lecture. If the omission were made after deliberation, there is nothing to be said, for a faculty is the sum of all wisdom; if it arose from neglect and want of thought, or from paucity of ideas, then the thing is a matter of regret. An introductory lecture is an occasion for the gravest utterance, and one that should not be lightly set aside. It affords an opportunity for welcoming the new comers into the university life, of impressing upon them the seriousness of the undertaking upon which they are embarked, and setting before them the ideals by which they should be actuated. The minds of the Freshmen are in a peculiarly susceptible condition, and lessons of sobriety, self-restraint, and kindliness, as set forth in an introductory lecture from some one high in position, would find an abundant entrance. It is the one occasion on which students of any year will willingly endure being preached to; physicians are not always the worst preachers, nor students of medicine the least in need of that salutary exercise.

The university sermon has been abandoned long ago, and it looks as if the introductory lecture were to follow it into oblivion, yet an hour

would not be misspent, either by students or by teachers, in listening to counsel in favour of diligence, humility, quietness and industrious peaceable living, and remonstrance against idleness, on the one hand, or self-absorption and too hard work on the other, which last is after all the least harmful form of vice. We hasten to add that the editors of this Journal are not taking it upon themselves to supply the omission.

The term "proprietary preparation" is habitually employed in this JOURNAL in its exact and specific sense. It is intended to describe a preparation which is proprietary. Some preparations are reliable and some are not. According to the official bulletins of the Canadian Government, most of the preparations sold by druggists are not reliable, and this observation applies to such standard articles as tincture of opium, tincture of belladonna, nitrous spirits of ether, etc. If a physician thinks that a preparation of opium, manufactured by a certain firm, is better than any other, he may prescribe that it be drawn from the stock manufactured by that firm, and in such a case we understand that he demands a preparation of opium of which that firm is the proprietor. The term "proprietary" does not indicate whether the preparation is good or bad, whether its composition is secret or well-known. If we have to specify a preparation of which the ingredients are unknown, we refer to it as a "secret proprietary preparation," as a nostrum," or any such term as comes to hand. We are quite well aware that the term "proprietary" is sometimes employed to indicate secret preparations alone. Such a restriction is incorrect. It is not so employed in this JOURNAL.

A practice which is common enough in England has not yet obtained any great favour here, that is the laudation in the public press by patients of their physician's services. It is taken for granted here, that if a man falls ill, he seeks proper advice, that he will be wisely counselled and recommended to enter a hospital, if the nature of his case demand that method of treatment, and that finally he will be humanely cared for whilst he remains in the institution. Physicians in this country are content when they have followed out that routine; if the patient pay his bill and have gratitude in his heart, the physician is still content; if the patient express that gratitude discreetly and privately the physician will make nothing more than feeble protestation, but when the patient embodies his sentiments in a letter to the newspapers, he is revealing himself, and causing chagrin to his adviser. Mr. Alfred Wraith, delegate from the Osett Chamber of Commerce, Yorkshire,

England, appears not to have been advised of this peculiarity of ours. He wrote such a letter and had it published.

The Women's Christian Association have taken a hand in the anti-tuberculosis campaign, and waited upon the Mayor, to urge that placards be exposed against the practice of spitting on the sidewalks. This is the first occasion on which the statistical method has been applied to the practice of expectoration. One lady discovered on Bleury street in the space of four blocks 193 "new expectorations," and the same afternoon the number was 194. The half dry expectorations were rigidly excluded from the enquiry, though no standard of dessication was mentioned, but there was good evidence that they would have numbered as many more, giving a total for the day of 774. Something must surely be done, but in the meantime the Mayor, who had himself probably come to his office by Bleury street that morning, might have taken the opportunity to urge the ladies to use their influence in the direction of inducing women to cut a piece off the bottom of their skirts, and so remove one of the most disgusting effects of the practice of expectoration.

The Medical Journals in the Middle and Western States are reproducing a correspondence which a New York physician had with the *Evening Post* and the *Mail and Express* on the subject of the introduction of leprosy into the United States through the medium of Asiatic immigration. This writer acknowledges that he had taken the unusual course of writing to the Governor-General of Canada, protesting against the menace to the United States that was found in the lazaretto at Tracadie, and one or two other places. From these isolated leper colonies he infers that Canada has "let down the bars" to Asiatic invasion and is thereby becoming infected with leprosy. There is a worse malady than leprosy, and that is bearing false witness.

A movement is on foot for the amalgamation of the two Ottawa organizations of physicians and surgeons, the Ottawa Medical Society and the Ottawa Clinical Society. The Ottawa Medical Society is made up of the doctors connected with St. Luke's Hospital, and the General Hospital, Water street. The Clinical Society is composed mainly of the doctors of the staff of the Protestant Hospital. A few years ago, it will be remembered, there was some misunderstanding among the staff of the Protestant hospital and the rupture culminated in the movement for the erection of St. Luke's Hospital. Inasmuch as both societies perform identically the same work and have one common aim, all persons interested will be benefited materially by the projected amalgamation.

Reviews and Notices of Books.

A Manual of Obstetrics. By A. F. A. King, A.M., M.D., Professor of Obstetrics and Diseases of Women and Children in the Medical Department of the Columbian University, Washington, D.C., and in the University of Vermont, etc. Ninth edition, revised and enlarged. Lea Brothers & Co., 1903.

The mere fact that a manual for students has reached its 9th edition, proves that it must be popular; but whether the general use of such books is really helpful to the student or not, is quite another question. If used as a means of refreshing the memory, of giving method or system to his reading, or as an aid in revising his work, it may be of service; but if the student crams up from such a book for examination or relies upon it as containing all that it is essential for him to know for the practice of his profession, he will make a sad mistake. As a matter of fact he will receive from it many false ideas and impressions respecting modern methods of practice. For example, many of the obstetric instruments, such as forceps, perforators and cranioclasts are figured with the old fashioned checked wooden handles; in the cuts illustrating vaginal examination, relaxation of the perineum during labour, extraction of the head in breech cases, the use of the filet, blunt hook, forceps and perforator, the operation of podalic verson, bimanual anteflexion of the uterus for the arrest of p. p. hæmorrhage, etc., the operator's arm is shown covered with shirt sleeves, cuffs and coat sleeves. The man who imitates such technique and uses such instruments of doubtful cleanliness is not adopting modern antiseptic methods and can not expect to obtain the best results. While, on the whole, the text is clear and concise, there are many important omissions; for example in the description of the implantation of the fertilized ovum in the uterus, there is no mention of the modern theory of imbedding, and in the description of *accouchement forcé* no reference is made to the use of Bossi's dilator, and the method of bimanual dilatation of the os which is figured is not the quickest, safest or best. These are a few of the defects of the book; on the other hand, it is concise, clear and readable and at the end has a useful chapter upon the jurisprudence of midwifery. In most of the larger books it is a serious omission that some information is not given upon such an important subject. On the whole this book may be helpful to students if used properly, and not made to replace altogether larger and more complete works, and especially if read along with careful notes of a systematic course of lectures.

A Thesaurus of Medical Words and Phrases. By Wilfred M. Barton, M.D., Assistant to Professor of Materia Medica and Therapeutics, Georgetown University, Washington, and Walter A. Wells, M.D., Demostrator of Laryngology and Rhinology, Georgetown University, Washington; octavo, 534 pages. W. B. Saunders & Company, 1903. Flexible leather, $2.50 net. Canadian Agents : J. A. Carveth & Co., Toronto.

This book is of doubtful utility, inasmuch as it is likely to accomplish the end which the editors acknowledge in the preface they had in view, "to find a certain technical term to express an idea which had temporarily escaped our minds, *and which.*" That is the vice of most medical writing, the substitution of technical terms for ideas and it is one which requires no encouragement. It would be better, one would think to wait patiently until the idea came back. If the editors had so waited, they would not have employed the term "categorematic" in the preface, a word, the meaning of which none but dictionary makers, reviewers of books, and other infallible persons are likely to know. The editors point out the value of the book to novelists, requiring the employment of technical medical terms as if it were desirable to encourage them still further in writing about what they do not understand. We say again it is a questionable service to reveal to writers that they may employ such terms as keraunophobia, bromidrosiphobia, siderodromophobia to express fear of lightning, of bodily odours and of railroads. One must wonder who has created these words; they might have been of service to a Roman journalist of the third century; to one who aspires to write in English they are of none.

The Principles of Obstetrics, a Practical Manual for the Student and General Practitioner. By Stanley Perkins Warren, M.D., Portland, Me., Obstetric Surgeon to the Maine General Hospital; octavo, 385 pages; illustrated by 165 line and half-tone engravings. Cloth, $3.00 net; leather, $3.75 net. William Wood & Company, Publishers, New York.

This work designs to teach that aseptic midwifery is possible under the restrictions of the private home, and the author trusts that it will be found to be "a working hand-book adapted to the requirements of private practice, where the refinements of hospital instrumentation and nursing are conspicuously absent." The author has turned out a very acceptable little manual; the subject is presented in a simple, almost elementary form, and is well adapted to the needs of the primary student. The general practitioner also will find, many valuable hints of a very practical character scattered throughout the work. The chapters

on the diagnosis of pregnancy, the conduct of labor, and infant feeding are excellent and the best in the book. The statement on page 90 that: "In multiparæ urinalysis may ordinarily be deferred until symptoms of kidney insufficiency appear," is certainly open to criticism. It is also to be regretted that in dealing with the subject of asphyxia of the new-born, a description of the Sylvester method of treatment has been omitted. This method is also omitted in Whitridge William's recent book. The work of the publishers is up to the usual high standard associated with this house in the minds of the medical public.

D. J. E.

A Text Book of Pathology. By Alfred Stengel, M.D., Professor of Clinical Medicine, University of Pennsylvania; fourth edition. W. B. Saunders & Co., Philadelphia, 1903. Canadian Agents : J. A. Carveth & Co., Toronto.

The history of this work is interesting. It was first issued in 1898; it was revised and reprinted in March, 1899, again reprinted in August, and also in November of that year. It was revised in October, 1900, reprinted in July, 1901, and September, 1902, and now appears as a fourth edition. Stengel's book occupies a place in pathology similar to that which Osler's holds in medicine. It has grown to 933 pages, an increase of 60 pages over the previous edition. The changes are found chiefly in the section dealing with general pathology, and the subjects that have received most attention are the theories of immunity, inflammation, the bacterial diseases and abnormal conditions of the blood. A chapter has been added upon the technique of pathological methods, or as Dr. Stengel writes it, "the technic of pathologic methods," and the illustration has been amended and increased. While this rapid reissue of books attests to their popularity, it makes one despair of acquiring a medical library which shall be of permanent value. A new edition to some extent destroys the value of the previous one, and one hesitates in buying a book which is sure to be superseded in a year or two. Dr. Stengel's work has frequently been mentioned in this Journal, and the present revision keeps it, as it has always been, one of the most authentic and satisfactory for all purposes, that is accesible to the student, the practitioner, or the pathologist.

A Text Book Upon the Pathogenic Bacteria. By Joseph McFarland, M.D., Professor of Pathology and Bacteriology, Medico-Chirugical College, Philadelphia. Fourth edition. W. B. Saunders & Co., Philadelphia, 1903.

Since 1896, this book has gone through four editions, and has grown from 359 to 629 pages. The alterations to be noted in this edition are

an extension of the chapters on infection and immunity, the introduction of references to the literature of bacteriology, an index of authors and an amplification of the descriptions of technique. The book is not to be mistaken for a general treatise upon bacteria; it deals only, but very fully, with those forms which under ordinary circumstances are pathogenic and has thereby a definite usefulness to those whose business it is to deal with disease. Dr. McFarland writes with a good style and a reading of his book is pleasing besides being informing. One follows his argument with a sense of security.

DISEASES OF THE EAR. A Text Book for Practitioners and Students of Medicine. By EDWARD BRADFORD DENCH, M.D., Professor of Diseases of the Ear, University and Bellevue Hospital Medical College, third edition, revised and enlarged; with 15 plates, 158 illustrations. D. Appleton & Co., 1903.

A handsome, well printed, and well illustrated volume. Otology as a whole is treated in a thoroughly modern manner, but the work is to be specially commended for the comprehensive and lucid chapters on the examination of the ear and aural operations. In treating clearly and fully in this third edition the latest developments of operative ear work, the author has supplied a want in English otological literature.

W. G. M. B.

THE PRACTICAL MEDICINE SERIES OF YEAR BOOKS, comprising 10 volumes, issued monthly, edited by GUSTAVUS P. HEAD, M.D., Vol. VIII., Materia Medica and Therapeutics and Forensic Medicine, by George F. Butler, Henry B. Favill, Norman Bridge, Daniel Brower and Harold A. Moyer, July, 1903. The Year Book Publishers, Chicago.

Frequent mention has been made of this series. It continues to be good and moderate in price.

Medical News.

McGILL UNIVERSITY.

The formal opening of the University for the year 1903-1904 took place on the 22nd September. The Principal assembled the students of Arts and Science in the Molson hall, where they met the members of the faculty, including those teachers who were appointed since the close of last session, namely: Professors Nobbs, in Architecture; Harkness, in Mathematics; MacNaughton, in Classics; Caldwell, in Ethics; Taylor in Logic, and Professor Moyse, the new Dean of the faculty of Arts.

The Principal welcomed the students cordially; he expressed the hope, that at some future time they would have a hall of residence, he expressed satisfaction at the high status, to which the faculty of Arts had attained as a result of the reorganization of the curriculum and the additions to the staff. He referred to the high enconiums he had heard upon the University, whilst he was abroad, and concluded by asking the students to remember, that though it was difficult for him to know them all personally, they were, at all times welcome to come to him for any purpose which they might have in mind.

McGILL MEDICAL COLLEGE.

The seventy-second annual session of the McGill Medical Faculty opened on the 22nd September, and lectures began the following day, to continue till 21st May, 1904, when the annual examinations will commence. The changes in the staff and in the curriculum have already been noted. The register is still open, and no accurate knowledge of the members to be in attendance can be obtained until it closes. Up to the present considerably over three hundred have registered and everything promises well for a successful year.

BISHOP'S COLLEGE.

The thirty-third annual session of the Medical Faculty of the University of Bishop's College opened on Tuesday, 15th September, and will continue till the 28th of May, the usual Christmas holidays intervening. The opening is a month earlier than last year, and for that reason the members in attendance are rather smaller than usual, but from information obtained from the Registrar it would appear that the prospects for an increased attendance are good. The Dean is making rapid progress towards recovery from his recent unfortunate accident.

LAVAL UNIVERSITY.

Laval University will reopen on the 6th October, with no special change in the teaching staff for the present, at least. The curriculum of studies will undergo some modification, in regard to Morbid Anatomy and Bacteriology, but final changes will not be announced till after the 5th of October.

THE MATRICULATION IN MEDICINE.

For the information of the older graduates, who may be interested to know what medical students have to endure, a few of the questions set at the recent examination for matriculation, are reproduced :—

Discuss the qualities of Tennyson's poetry illustrated by the following poems : Dora; Recollections of the Arabian Nights; The Revenge.

Parse the words in italics in the following sentence:—

But thou, that didst *appear so fair*
To fond *imagination,*
Dost rival *in* the light of day
Her delicate creation.

The adjacent sides of a rectangle are $8\frac{1}{4}$ and $13\frac{1}{4}$ inches. Find in centimetres one side of a square which has the same area as the rectangle. [The above question is now called "arithmetic." Ed.]

Explain how a bicycle rider recovers his balance by turning towards the side on which he is falling. [The above is "physics." Ed.]

If a straight line touch a circle, and from the point of contact a chord be drawn, the angles which this chord makes with the tangent shall be equal to the angles in the alternate segments of the circle. [This, of course, is geometry. Ed.]

Write down the fut. indic. of sum, pres. subj. act. of moneo, imperative act. of audio, all the participles of hortor, gerund and gerundive of rego.

Translate, explaining fully the construction of italicized words : Huius cum sententiam plurimi *essent secuti,* Militades non dubitans tam *multis consciis* ad regis aures consilia sua perventura, Chersonesum reliquit ac rursus *Athenas* demigravit. cuius ratio etsi non valuit, tamen magno opere est laudanda, cum amicior omnium libertati quam suae fuerit dominationi.

Old graduates are reminded that "j" is now written "i," also note the subtlety of the punctuation. Ed.]

Given the 1st sing. of present and imperfect, and *gen, verstlien, thun, gefallen, nehmen, reden, bitten, beten,* the past participle of *richten, lassen, gehen, fragen, tra-*

[Graduates will note amongst other things the clever transposition of the second and third lines to preserve the German feeling. Ed.]

MEDICO-CHIRURGICAL SOCIETY.

The first Council meeting of the Montreal Medico-Chirurgical Society was held on Friday evening, 25th September, the President, Dr. Birkett, presiding. The reports of the secretary and chairman of the committees were received, and many matters taken into consideration, which the Council hope will tend to make the meetings of the Society even more interesting and efficient than in the past. The first meeting of the Society will be held on the 2nd October.

LA SOCIETE MEDICALE.

This society, which is attended by most of the French speaking members of the profession, will resume its regular work on the first Tuesday in October, and will continue thereafter on the first and third Tuesdays of each month. The first meeting will open with the election of the officers for the current year. A special meeting, however, was held on 24th September, to consider a motion passed by the Shefford County Medical Assoiation, dealing with a lessening of the number of governors on the Provincial Medical Board.

MONTREAL GENERAL HOSPITAL.

The last quarterly report of the Montreal General Hospital, shows that 813 patients had been treated in the wards with 67 deaths, 26 of which occurred within three days after admission, making the ordinary mortality 5 per cent. The total number of hospital days was 16,177 with an average detention per patient of 19.9 days. In the outdoor department there were 8,651 consultations, an increase of 543 over the corresponding quarter of the previous year. During the three months the ambulance responded to 383 calls, an increase of 103 over the corresponding period of last year.

The ordinary income for the quarter was $16,054.44, as against $18,501.08 for the corresponding quarter of 1902, being a decrease of $2,446.64. This decrease came about by a falling off in the annual subscriptions of $1,430, and ordinary donations of $1,226. The expenditure for the quarter was $24,916.78, as against $23,837.63 for the corresponding three months of 1902, showing an increase of $1,079.15, chiefly in salaries and wages. Legacies without conditions were received from the following estates : The late Miss Catherine Wurtele, $8,000; M. Wurtele, $8,000; Annabella Leith, $500; Miss Cameron, $25, and the late Mr. John Crawford, $900.

The typhoid fever cases continue to increase and on the 15th September, there were 34 patients in the wards.

THE ALEXANDRA HOSPITAL.

The new hospital for infectious diseases has been advanced another stage. The committee has purchased a plot of ground comprising a space of about 160,000 square feet in Point St. Charles, near the revetment wall, the exact location being between Charron street and Ash avenue. The committee is satisfied that the property is in every way suitable and the price reasonable. Several architects have been asked to submit plans for the erection of a complete infectious hospital of four pavilions to accommodate 100 patients.

HOTEL DIEU.

During the month of August 2,117 out-patients and 603 in-patients were treated at the Hotel Dieu. Of these 1,117 were treated in the eye, ear, nose and throat department. The present house staff consists of Dr. Bourgeois, as head house surgeon, and Drs. Ludovic Verner, J. R. Hamelin, G. E. Bedard, Henri Prevost and Eugene Latreille.

NOTRE DAME HOSPITAL.

During the month of August 2,024 patients were treated in the Outdoor department and 225 in the wards. The house surgeon's staff is still headed by Dr. Fleury; the staff is five in number, of whom Drs. E. David and Joseph Rousseau are the recent additions.

DISTRICT OF ST. FRANCIS MEDICAL ASSOCIATION.

The district of St. Francis Medical Association met in Sherbrooke September 9th, with Dr. W. D. Smith presiding.

At a meeting of this Association held last May, Dr. Russell Thomas, of Lennoxville, gave notice that at this meeting he would move "that the association regrets that Dr. Pelletier, one of its members, should have voted in the Quebec Legislature against Dr. Roddick's Bill for Dominion Registration."

Previous to the last meeting of the Canadian Medical Association at Winnipeg, the District of St. Francis Medical Association elected Dr. Thomas its special delegate to that meeting, instructing him to support Dr. Roddick's bill. Dr. Thomas considered Dr. Pelletier under the circumstances should not have voted against the bill, and moved the above motion, notice of which he had given last May.

Dr. Pelletier in reply said he considered he was more responsible to his constituents in the matter than to the association; that while he agreed with the principles of the bill, he objected to some of its terms, and consequently voted against it, as he thought he had a perfect right to do, particularly as he had not been present at the meeting which elected and instructed Dr. Thomas. Dr. Thomas then withdrew his motion.

A resolution passed before the Shefford Medical Association, advocating a reduction in the number of governors in the College of Physicians and Surgeons from 43 to 25, was submitted for consideration. Dr. Beique moved in amendment, that the Board of Governors be reduced from 43 to 25, and, in consequence that one representative be chosen

from each university instead of two. A vote was taken and the amendment was carried by a majority of seven.

The following officers were elected :—

President: L. C. Bachand, Sherbrooke; 1st vice-president, J. McCabe, Windsor Mills; 2nd vice-president: A. G. Beique, Magog; secretary: F. A. Gadbois, Sherbrooke; assistant secretary : E. J. Williams, Sherbrooks: Council: W. A. Farwell, F. J. Austin, Dr. Camirand.

ASSOCIATION OF HEALTH OFFICERS.

The eighteenth meeting of the Association of executive health officers of Ontario was opened at Peterboro on the 9th September. The President, Mr. Thomas MacFarlane, Ottawa, occupied the chair, and there were in attendance Dr. Bryce, Secretary provincial board of health; Dr. Lane, Mallorytown; Dr. Bingham, Medical health officer, Peterboro; Dr. McNulty; Dr. Klotz, Ottawa; Dr. Oldright and Dr. Hodgetts, Toronto; Mr. J. W. Bowlby, Brantford; Wm. Skinner, B. C. McBride, R. A. Carruthers, Dr. Hutchinson and Charles Taylor, London; Dr. Hall, Chatham; Dr. J. F. Fraser, Medical health officer, Lakefield; Dr. McCrimmon, Claremont; Dr. Pearson, Brantford; Dr. Boucher, Peterboro, member of the provincial board of health; Dr. Greer, Dr. Caldwell, Dr. McGrath and Dr. Halliday.

Dr. Bryce, in the absence of the writer read the paper of Prof. W. T. Connell, Kingston, upon the subject of water-born epidemics of typhoid fever. Details were given of an outbreak of typhoid and diarrhœa last February, traceable to a break in the intake pipe of the city waterworks, the epidemic ceasing with the repair of the pipe.

Dr. McNulty, Peterboro, read a paper upon the etiology and suppression of typhoid epidemics.

Dr. Oldright read a paper on vaccination in relation to public health, and showed that public opinion must be educated to sustain governments in enforcing vaccination. Dr. Bingham also gave a short address on vaccination as a preventative of smallpox.

Dr. Shaw, Medical health officer of Keene, read a paper on County Medical health officers.

Dr. Klotz of Ottawa, gave a paper on serums in their relations to diphtheria and scarlatina.

The paper of Dr. Robert Law, Medical health officer of Ottawa, dealt with the question of the relation of hospitals to the spread of infectious disease.

Dr. Bryce, Secretary of the provincial board of health, spoke of the importance of the place of isolation hospitals in the suppression of disease.

The President and Council of the University of Toronto, have issued invitations to be present at the inauguration of the new buildings for physiology, pathology and medicine, on Thursday, October 1st.

Dr. Frank C. Fraser, died at his father's residence, University street, Montreal, on the 26th August. Dr. Fraser was a graduate of McGill in Arts, and Medicine of the class of '98 and was house surgeon in the Royal Victoria Hospital. The cause of death was tuberculosis.

Tenders have been issued by the department of marine and fisheries for the erection of a marine hospital at Louisbourg. The new building will be of wood, and will be sixty-five feet long, forty feet wide, and three stories high. Owing to the increase of shipping at Louisbourg the need of a marine hospital has been greatly felt.

The Brandon General Hospital is making good progress. The new building, the foundation of which is already completed, will lie to the west of the old building, it will be 36 by 89 feet, of stone and brick and will have two stories and a basement, it will contain thirty-two beds, and will cost $25,000. A portion of the ground floor will be devoted to maternity cases, and the remainder of the first and all of the second will be for surgical work.

The half-yearly examinations of the Nova Scotia Medical Board were completed on the 9th September. Of the seven candidates for license, five were successful; Edwin Egbert Dickey, Dalhousie, '03; Cyprus Decker Lloyd, Tufts', '98; W. T. Morris, Toronto, '03; S. C. Morris, McGill, '03; C. W. O'Brien, McGill, '03; W. N. Rehfusse, McGill, '03. The examiners were Drs. J. W. MacKay, N. E. MacKay, N. F. Cunningham, A. J. Cowie, M. A. Curry, D. MacIntosh, A. P. Reid and E. V. Hogan.

The opponents of the federation of Toronto and Trinity universities have had recourse to the law, and obtained an injunction restraining the committee from presenting their report, the corporation from adopting it, and the bishops from approving it. The plaintiffs in the action are Dr. Wm. Nattrass, a medical graduate, Rev. T. W. Powell, a divinity student and Rev. John Langtry, a graduate, who sue on behalf of all students and graduates. The defendants are the bishops and Provost Macklem, J. A. Worrell, K.C., Edward Martin, the committee appointed by Trinity corporation to negotiate federation with a similar com-

mittee from Toronto University. Whatever the outcome of the proceedings may be, the best information is that it will not affect the arrangement between the two medical faculties.

Dr. Wilfrid L. Taylor, McGill, '01, died at Waterloo.

Dr. W. E. Montgomery died at Gorrie, Ont., 8th Sept., of phthisis.

Dr. Armand Hudon, Montreal, died 1st September, after an illness of three days.

Dr. R. Bruce Shaw, Charlottetown, a graduate of McGill, and at one time house-surgeon, Royal Victoria Hospital, died in Boston.

Retrospect of Current Literature.

SURGERY.

UNDER THE CHARGE OF GEORGE E. ARMSTRONG.

The Age for Operating on Cleft Palate.

R. W. Murray, F.R.C.S., Eng. "The Age for Operating on Cleft Palate." *British Medical Journal*, August 29th, 1903.

When the cleft involves either the soft palate alone or both the soft and hard, about the end of the second year is advocated as being the best time to operate. In cases of hare-lip not associated with cleft palate, Mr. Murray operates between the third and fourth week, when the two cœxist, the lip is treated first, the palate afterwards at the given ages.

If the defect is limited to the lip or soft palate the prognosis for perfect articulation is good, but when the cleft involves the alveolar border, or hard palate, no matter at what age the operation is done, the result obtained is not as favourable, as defect in these structures is associated with imperfect development in the nasal chambers and these play a very important part in articulation.

Closure of the cleft before the child learns to speak gives the best result, while operation in earlier infancy is more difficult, the tissues are friable, and amount of flaps obtainable very much less, with the result that the soft palate is made smaller and is not movable, two factors regarded by the writer as essential for proper articulation.

Intussusception of the Vermiform Appendix.

F. Powell Conner, F.R.C.S., Eng. "Intussusception of the Vermiform Appendix." *Lancet*, August 29th, 1903.

This rare condition was rendered more interesting by the unique

fact that the appendix itself formed the apex of the intussusception. The etiological factor was a blow upon the abdomen producing a primary appendiculo-cæcal intussusception followed by a more extensive ileo-cæcal invagination.

The Surgery of the Ureter for Impacted Calculus and some other Causes of Obstruction.

P. F. Freyer, M.A., M.D. "The Surgery of the Ureter for Impacted Calculus and some Other Causes of Obstruction." *Lancet*, August 29th, 1903.

The report is based upon ten cases of ureteral calculus, all of which were successfully operated upon. The great difficulty of making a positive diagnosis of ureteral calculus, except when the impaction is at the vesical end is reviewed, and the aid derived from a cystoscopic examination of the bladder, especially when the stone is low down, emphasized. In eight cases the impaction was at the lower end, and in two of these the stone could be seen at the vesical orifice. In the remaining two it was situated between two and four inches from the pelvis of the kidney. The ordinary oblique lumbar incision, prolonged parallel to Poupart's ligament if necessary, and extraperitoneal route is advocated as being freer from the dangers attending the intraperitoneal method and giving all the necessary access to the ureter throughout its whole course. Closure of the ureteral wound by sutures is considered "neither necessary nor advisable when the stone is removed by an extra peritoneal operation." Other causes of ureteral obstruction are given, and a case of movable kidney producing kinking of the ureter with resulting hydronephrosis and associated with stricture due to periureteral adhesions, successfully operated upon, is included in the report.

Prostatic Hypertrophy and its Radical Cure.

William Post Herrick. "Prostatic Hypertrophy and its Radical Cure." *Medical Record*, August 15th, 1903.

The surgical anatomy, etiology, pathology, symptoms, diagnosis, and treatment are reviewed. The treatment is palliative and radical. Although palliative measures may relieve they can never cure the disease, and since the condition is a progressive one prostatectomy is advocated, as in such cases radical or curative treatment is often, in the long run, the most conservative plan. The perineal route is the one selected because it is more direct, the prostate more easily reached, and enucleated with less damage to the prostatic urethra and neck of the bladder, dependent drainage secured, and the operation attended by the lowest mortality rate and best curative results.

When chronic posterior urethritis and prostatitis exist they should

receive appropriate treatment; when the bladder is badly infected a preliminary cystotomy is advised. A plea is made for the earlier detection and operative interference so as to anticipate the cause of the disease. "Prostatic hypertrophy is now curable by means of an operation which though serious, is not hazardous when undertaken in proper time and manner. Anatomically, and now surgically, the simple perineal is the direct and preferable route." Dr. Syms is reported as having operated upon twenty-four cases with only one death.

The Treatment of Congenital Phimosis.

J. F. Woodyatt. M.R.C.S., Eng. "The Treatment of Congenital Phimosis." *Lancet*, August 29th, 1903.

According to the writer congenital phimosis is caused by a constricting ring of mucous membrane just inside the prepuce, and the prepuce itself is never redundant and never causes phimosis. Accordingly the usual circumcision operation is condemned. The method advocated is to retract the prepuce as far as possible, then snip through the constricting ring of mucous membrance on both sides, and then convert the longitudinal incisions into transverse wounds by suturing after the manner employed in pyloroplasty.

The Operative Treatment of Tuberculous Glands of the Neck.

J. G. Sheldon, M.D. "The Operative Treatment of Tuberculous Glands of the Neck." *New York Medical Journal* and *Philadelphia Medical Journal*, September 5th, 1903.

The complete removal of not only the glands but the fat, infected fascia and every structure except the important vessels and nerves is the radical measure advocated. The presence of a few tuberculous glands in any of the triangles warrants complete dissection of the entire triangle. The article is based upon what appears to be an insufficient number of cases, and is chiefly taken up with a résumé of the surgical anatomy of the triangles.

The Cure of the more Difficult as well as the Simpler Inguinal Ruptures,

W. S. Halsted, M.D. "The Cure of the More Difficult as well as the Simpler Inguinal Ruptures." Bulletin of the Johns Hopkins Hospital, August, 1903.

In this contribution Dr. Halsted gives a brief review of the evolution and perfecting of his operation. The steps of the operation are given and admirably illustrated by six drawings. The veins are excised, the vas deferens disturbed as little as possible, the sac tied off high up and fixed after Kocher's method. The cremastar is sutured to the internal

oblique to reinforce the lower end of the wound and when the internal oblique and conjoined tendon are atrophied the sheath of the rectus is employed for the same purpose by suturing it along with the tendons to Poupart's ligament. The results obtained have been most favorable.

Tumour of the Intercarotid Body.

Charles L. Scudder, M.D. "Tumour of the Intercarotid Body." *The American Journal of the Medical Sciences*, September, 1903.

Only six cases have been reported, four by Paltauf and one by Marchand. The tumour in this case involved the common, internal, and external carotids, necessitating their ligation in its removal. The pathological diagnosis was "a variety of angiosarcoma, known as perithelioma." The patient made a good recovery.

Further Observations on the Influence of the Roentgen Rays upon Sarcoma.

William Coley, M.D. "Further Observations on the Influences of the Rœntgen Rays upon Sarcoma." *New York Medical* and *Philadelphia Medical Journal*, August 8th, 1903.

The results obtained in 36 cases of inoperable sarcoma are tabulated. The treatment was not confined to the X-ray, but in some cases the toxine treatment was combined with it. On comparing the relative merits of the two, toxine gives the better results. Some cases of round-celled sarcoma not benefited by the toxines showed marked improvement under the X-ray, but recurrence took place in all of them after treatment was discontinued. On the other hand a much larger number of round-celled sarcoma gave better results under the toxine, twenty being free from any recurrence after 3-10 years, and fifteen after 5-10 years. In spindle-celled sarcoma X-rays give very little result, while 50% of such cases have disappeared under toxine treatment. He believes "the combined treatment will give better results than either used alone." The X-rays should be used only in inoperable cases, exception being when an extremity is involved and amputation required. Here the combined treatment should be tried. "Thus far we have proved that the X-rays have a very decided inhibitory action upon the various forms of sarcoma, in some cases, sufficient to cause entire disappearance of inoperable tumours. Yet there is a strong tendency to local or general recurrence, and in no instance has sufficient time elapsed to warrant us in considering the patient cured. Good results cannot reasonably be looked for without prolonged treatment extending over many months and in some cases years."

MEDICINE.

UNDER THE CHARGE OF JAMES STEWART, F. G. FINLEY AND H. A. LAFLEUR.

Differential Leucocyte Count in Early Days of Typhoid Fever.

HENRY A. HIGLEY. "Differential leucocyte count in the early days of typhoid fever." *Medical Record,* September 19th, 1903.

This is a paper read before the New York Pathological Society. The author quotes the conclusions of Türck, Naegeli, Ouskow, Thayer, and Winter. From their observations he considers it definitely settled that in uncomplicated cases of typhoid, the polymorphonuclear neutrophilic leucocytes are relatively and absolutely decreased, while the large mononuclears are always relatively and usually also absolutely increased in number and that furthermore the small mononuclears are relatively and absolutely decreased, normal or increased, the eosinophiles being both relatively and absolutely sub-normal. Without any desire to minimize Thayer's results or bring them under suspicion, he points out that Thayer has not stated the grounds upon which the diagnosis of typhoid fever was made, nor the facts which led him to suppose that the counts were, in truth, made during the first week of the disease, and adds that the counts were not made individually by him, but by different internes at the Johns Hopkins hospital.

Two years ago Dr. Higley began a series of observations upon the subject and has come to the following conclusion based upon sixteen cases: "That in many instances the differential leucocyte count which may be called characteristic of typhoid fever is present, contrary to general supposition, during the first week of the disease," and "that the definite value of the differential leucocyte count in the early diagnosis of typhoid fever is as yet problematical; but it seems certain that when used in addition to the total leucocyte count, more information may be obtained than by employing the total count alone."

The Inoculability of Human Tuberculosis upon Bovines.

D. J. HAMILTON. "The inoculability of human tuberculosis upon bovines." *British Medical Journal,* September 12th, 1903.

Professor Hamilton, in his opening address, before the 71st annual meeting of the British Medical Association, dealt largely in a controversial manner with the problem of inoculability. He defended the experiments conducted by himself and Mr. Young, and affirmed again that they went to confirm the unity of the bovine and the human organism. In conclusion, he says: "I cannot but think that the question of the transmissibility of human tuberculosis to the bovine is pretty well settled in the affirmative. The opposite side of the question, whether

bovine tuberculosis is transmissible to man, can, of course, never be proven experimentally, and must for ever remain a matter of conjecture."

The Leucocytes in the Summer Diarrhœa of Children.

JOHN ZAHORSKY. "The Leucocytes in the Summer Diarrhœa of Infants." *N. Y. Med. Jour. and Phila. Med. Journal.* 12th September, 1903.

According to the studies of Japha *(Jahrb. f. Kinderh.,* 1901), and Knox and Warfield *(Johns Hopkins Hosp. Bull.,* July, 1902), the healthy infant has about 13,000 leucocytes in the cubic millimetre. The differential count in the normal infant is approximately as follows :— polymorphonuclears; 40 per cent, lymphocytes; 55 per cent, large mononuclears; 5 per cent.

Dr. Zahorsky concludes that the normal ratio of the polymorphonuclears to the lymphocytes in healthy infants is 2 to 3 or 4. In gastro-enteric disease this ratio beomes changed; the leucocytes gradually increase and the lymphocytes diminish, when the ratio becomes 1 to 1, 4 to 3, 3 to 2, 2 to 1, and 3 to 1 successively. This predominance of the polymorphonuclears, therefore, becomes a corroborative sign of the intensity of the morbid process. A great relative increase in the polymorphonuclears means that the child is very ill, whatever other signs may indicate.

Upon the Virulence of the Bacillus of Bovine and Human Tuberculosis for Monkeys.

ALLAN MACFADYEN. "Upon the Virulence of the Bacillus of Bovine and Human Tuberculosis for Monkeys." *Lancet,* September 12th, 1903.

The experiments forming the subject of this note were undertaken with the view of ascertaining in how far the human and bovine strains of the tubercle bacillus agree or differ as regards their infective properties for the monkey. The methods adopted were mainly feeding experiments, as the particular object of the investigation was to determine to what extent the digestive tract is capable of acting as a channel of systemic invasion for tubercle organisms derived either from cattle or from man.

In the experiments the monkey proved susceptible to an inoculation with the bacillus of bovine tuberculosis either directly or after one passage through the organism of the guinea-pig. A certain number of the animals died in two or ten days after feeding with bovine and human tuberculous material. Normal human sputum did not produce this effect and the result suggested some form of intoxication. The

monkey fed thrice, twice, or once with the bovine material succumbed to a general tuberculosis in about from one to two months, and fed with the human material the same results and fatal effects were produced in about the same period of time. The young monkey proved to be equally susceptible to the bovine and human strains of the tubercle bacilli. The striking difference in the effects produced occurred in the digestive tract. Intestinal lesions were found in the case of every monkey that had been fed with human tuberculous material, whilst none of the monkeys fed with the bovine material presented any evidence of tuberculous ulcers in the intestine. Within the limits of these experiments it would appear that virulent bovine tubercle bacilli may pass through the intestinal wall in large numbers without any detectable lesion of the gut being produced. It would also appear that a food tuberculosis can be as readily brought about by the bovine as by the human strain of the tubercle bacillus in the young monkey.

The Treatment of Cancer and Other Forms of Malignant Disease by Electric Osmose.

CLARENCE A. J. WRIGHT. "The Treatment of Cancer and Other Forms of Malignant Disease by Electric Osmose." *Lancet*, 12th September, 1903.

After giving details of cases, upon which this method of treatment was employed, Mr. Wright concludes: "I would venture to suggest that 22 per cent. of successes is still sufficiently encouraging to recommend this method of treatment to the attention of the profession for a more extended trial than I have yet given it. It is not put forward as a cure for cancer, but as a suggestion of the line of treatment to be adopted till that is really discovered. I personally believe that a "radio-active salt of strontium, introduced into the tissues by cataphoresis by high frequency," will prove the desired panacea of all forms of malignant disease."

Solitary Tubercle of the Stomach.

ROY MCL. VAN WORT. "Solitary Tubercle of the Stomach." *Bulletin of Johns Hopkins Hospital*, September, 1903.

Dr. Van Wort reports a case of "a hitherto undescribed form of tuberculosis of the stomach." Tuberculosis of this organ is not unknown. Saltam Fenwick in 2,000 autopsies at the London Hospital upon patients dead of tuberculosis, observed the condition in two cases. Marfan was able to collect only about a dozen authentic cases. Perforation of the stomach occurred in three cases by ulceration of a tuberculous gland and Alice. Hamilton described three cases from the Johns Hopkins Hospital wards. Osler, however, states that the primary disease is unknown.

Dr. Van Wort's conclusions are : (1) The case is one of solitary tubercle in the muscularis of the stomach in which tubercle bacilli were found in the tissues and recovered from an experimental animal with the production of the typical lesions of tuberculosis. (2) It is impossible to state whether the lesion was primary in the stomach, but there is no definite evidence to the contrary.

DERMATOLOGY.

UNDER THE CHARGE OF F. J. SHEPHERD AND G. GORDON CAMPBELL.

Roentgen Rays in Dermatology,

STELWAGON. "Some Observations on the use of Roentgen Rays in Dermatology." *The Journal of Cutaneous Diseases including Syphilis, Aug., 1903.*

PUSEY. "The Rationale of and the Indications for the Therapeutic Use of Roentgen Rays. *Ibid.*

Almost immediately after the discovery of Roentgen rays dermatologists saw in it a possible new agent in the treatment of certain classes of skin disease, and since then every year has added more and more evidence of its value. Not only so but, if we can believe the reports, an ever increasing number of diseases is found in which X-rays have proved useful, and so enthusiastic have many of the workers in this field become that one would judge that the universal panacea for all skin diseases had at last been discovered. Recognizing that Roentgen rays as a therapeutic agent in dermatology were in danger of falling into more or less disrepute from the extravagant claims of the extremists, just as sulphur, arsenic, and thyroid extract have done in the past, Stelwagon, of Philadelphia, and Pusey, of Chicago, undertook in two excellent papers delivered before the last meeting of the American Dermatological Association to sum up the evidence so far adduced regarding the scope of this agent in the treatment of the dermatoses.

As yet no means of properly measuring the dosage of this form of energy has been devised and much difference of opinion exists regarding the kind of tube, length of exposure and distance from the target that are most serviceable. Judging from the opinions of the authors, however, and of those who took part in the discussion following the reading of their papers, it would appear that care must be taken to avoid the production of the cauterizing effects of the rays at the beginning of treatment, while great pains should be taken to protect the healthy tissues of the patient and the exposed parts of the operator.

Stelwagon and others, report severe burns of the hands, eyes and

thinning of the hair of the scalp from exposure to the rays while administering treatment.

As a curative agent Stelwagon considers that the X-rays have proved of most value in Epithelioma and more particularly in cases of rodent ulcer, especially those which are situated in the neighbourhood of the eyes and nose. He believes that most cases of this disease can be favourably influenced without the production of any dermatitis from the caustic action of the rays. He begins treatment with an exposure of five minutes, twice weekly for two weeks, with the tube at a distance of twelve inches. In the event of this failing to produce a positive effect the distance of the tube is shortened and the time of exposure lengthened until a slight erythema is induced; and in some cases ten minute exposures at a distance of five inches three times a week were found necessary. He admits that in some instances the unintentional production of a moderate degree of dermatitis was followed after the cessation of treatment by most favourable results. In order to as far as possible shorten the duration of the treatment, he advocates enucleation of the ulcer by curette or other means before beginning the application of the X-rays.

In lupus vulgaris, Stelwagon has not had as good results as in the treatment of epithelioma and makes the criticism that many of the recorded cures of this disease were in reality, as shown by the reports, rodent ulcer. He recognizes, however, the value of the rays as a means of treatment and considers that the Finsen light method has in it a formidable competitor.

Acne. The cases most likely to be benefitted are those of a sluggish, indurated type. The use of this agent in ordinary cases of this disease is not to be recommended.

Psoriasis. Here, in old chronic patches resisting other forms of treatment, the use of Rœntgen rays has been followed by some remarkable results.

Of eczema, again the same may be said, the cases in which this agent is likely to be found of most value being those in which a stimulating treatment is evidently indicated, those of the chronic much indurated, relapsing type, but little influenced by the ordinary remedies.

In Keratosis of the palms and soles many instances of rapid and apparently permanent improvement have been reported.

In one case of local Hyperidrosis, it was accidentally discovered that the rays had a curative effect.

In summing up, Stelwagon believes that we have in the Rœntgen rays a therapeutic agent of great value, but not one that possesses the marvellous powers accredited to it by many writers in large numbers of the dermatoses.

Pusey in his article summarized the changes that occur in the skin when exposed to the action of the Rœntgen rays. These are briefly those produced by an irritant of unusual character, which, when sufficiently intense, leads to the destruction or atrophy of the part. He quotes Oudin, Barthelemy and Darier's statement that "this irritation seems to increase the vitality of the least differentiated elements, while it produces degeneration and atrophy of the more highly differentiated structures—nails, hairs and glands." The effect produced upon a diseased tissue such as carcinoma is "degeneration and absorption of diseased cells and their replacement by healthy connective tissue, without the destruction of the healthy stroma." There is no effect upon bacteria in a culture medium, and the undoubted destruction of bacteria in living tissues is an effect to be explained by increased phagocytosis under the increased condition of activity excited by X-rays.

The actions of X-rays which can be made use of therapeutically are:—

(1) Causing atrophy of the appendages of the skin.
(2) Destructive action upon organisms in living tissues.
(3) The effect upon the metabolism of tissues.
(4) The power of destroying certain pathologic tissues.
(5) The anodyne action.

In applying these effects to the treatment of skin diseases, Pusey gives the possibilities of usefulness in those affections in which the following indications exist :—To remove hair, to cause exfoliation of the nails, to cause atrophy or decrease in functional activity of the sebaceous glands, to destroy bacteria, to influence the nutrition of the skin, to destroy tissues of low resistance, and to relieve pain and itching. Pusey does not recommend the use of radiotherapy in the removal of hair, while he found it successful in 75 per cent. of cases, the difficulties and dangers of the work rendered it impracticable. In sycosis and tinea sycosis, good results were obtained, and in acne the results in many cases could be described as marvellous. In lupus and epithelioma, the greatest success was obtained. In eczema, Pusey's opinion corroborated that of Stelwagon, that in the chronic indurated cases it was most valuable. Psoriasis also cleared up readily after a few applications, but it had no effect upon the recurrence. The anodyne effect has been made use of in anal and vulgar pruritus, and its analgesic effect upon the pain of malignant disease of the skin is well known.

In the discussion which followed the reading of these two papers, many of the members agreed with Dr. Stelwagon as to the value of radiotherapy in the diseases mentioned by him and without exception all agreed that its use was to be recommended only in such cases as were not amenable to ordinary methods of treatment.

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THE MASTER-WORD IN MEDICINE.

AN ADDRESS TO MEDICAL STUDENTS ON THE OCCASION OF THE OPENING OF THE NEW BUILDINGS OF THE MEDICAL FACULTY OF THE UNIVERSITY OF TORONTO, OCTOBER 1ST, 1903.

BY

WILLIAM OSLER, M.D., F.R.S.,
Professor of Medicine, Johns Hopkins University.

I.

Before proceeding to the pleasing duty of addressing the undergraduates, as a native of this province and as an old student of this school, I must say a few words on the momentous changes inaugurated with this session, the most important, perhaps, which have taken place in the history of the profession in Ontario. The splendid laboratories, which we saw opened this afternoon, a witness to the appreciation by the authorities of the needs of science in medicine, makes possible the highest standards of education in the subjects upon which our Art is based. They may do more. A liberal policy, with a due regard to the truth that the greatness of a school lies in brains not bricks, should build up a great scientific centre which will bring renown to this city and to our country. The men in charge of the departments are of the right stamp. See to it that you treat them in the right way by giving skilled assistance enough to ensure that the vitality of men who could work for the world is not sapped by the routine of teaching. One regret will, I know, be in the minds of many of my younger hearers. The removal of the departments of anatomy and physiology from the biological laboratory of the university breaks a connection which has had an important influence on medicine in this city. To Professor Ramsay Wright is due much of the inspiration which has made possible these fine new laboratories. For years he has encouraged in every way the cultivation of the scientific branches of medicine and has unselfishly devoted much time to promoting the best interests of the Medical Faculty. And in passing let me pay a tribute to the ability and zeal with which Dr. A. B. Maccallum has won for himself a world-wide reputation by intricate studies

which have carried the name of this University to every nook and corner of the globe where the science of physiology is cultivated. How much you owe to him in connection with the new buildings I need scarcely mention in this audience.

But the other event which we celebrate is of much greater importance. When the money is forthcoming it is an easy matter to join stone to stone in a stately edifice, but it is hard to find the market in which to buy the precious cement which can unite into an harmonious body the professors of medicine of two rival medical schools in the same city. That this has been accomplished so satisfactorily is a tribute to the good sense of the leaders of the two faculties, and tells of their recognition of the needs of the profession in the province. Is it too much to look forward to the absorption or affiliation of the Kingston and London schools into the Provincial University? The day has passed in which the small school without full endowment can live a life beneficial to the students, to the profession or to the public. I know well of the sacrifice of time and money which is freely made by the teachers of those schools; and they will not misunderstand my motives when I urge them to commit suicide, at least so far as to change their organizations into clinical schools in affiliation with the central university, as part, perhaps, of a widespread affiliation of the hospitals of the province. A school of the first rank in the world, such as this must become, should have ample clinical facilities under its own control. It is as much a necessity that the professors of medicine and surgery, etc., should have large hospital services under their control throughout the year, as it is that professors of pathology and physiology should have laboratories such as those in which we here meet. It should be an easy matter to arrange between the provincial authorities and the trustees of the Toronto General Hospital to replace the present antiquated system of multiple small services by modern well equipped clinics—three in medicine and three in surgery to begin with. The increased efficiency of the service would be a substantial *quid pro quo*, but there would have to be a self-denying ordinance on the part of many of the attending physicians. With the large number of students in the combined school no one Hospital can furnish in practical medicine, surgery and the specialties a training in the art an equivalent of that which the student will have in the sciences in the new laboratories. An affiliation should be sought with every hospital in the city and province of fifty beds and over, in each of which two or three extra-mural teachers could be recognized, who would receive for three or more months a number of students proportionate to the beds in the hospital. I need not mention names. We all know men in Ottawa, Kingston,

London, Hamilton, Guelph and Chatham, who could take charge of small groups of the senior students and make of them good practical doctors. I merely throw out the suggestion. There are difficulties in the way; but is there anything in this life worth struggling for which does not bristle with them?

Students of Medicine: May this day be to each one of you, as it was to me when I entered this school thirty-five years ago, the beginning of a happy life in a happy calling. Not one of you has come here with such a feeling of relief as that which I experienced at an escape from conic sections and logarithms and from Hooker and Pearson. The dry bones became clothed with interest, and I felt that I had at last got to work. Of the greater advantages with which you start I shall not speak. Why waste words on what you cannot understand. To those only of us who taught and studied in the dingy old building which stood near here is it given to feel to the full the change which the years have wrought, a change which my old teachers, whom I see here to-day—Dr. Richardson, Dr. Ogden, Dr. Thorburn and Dr. Oldright—must find hard to realize. One looks about in vain for some accustomed object on which to rest the eye in its backward glance—all, all are gone, the old familiar places. Even the landscape has altered, and the sense of loneliness and regret, the sort of homesickness one experiences on such occasions, is relieved by a feeling of thankfulness that at least some of the old familiar faces have been spared to see this day. To me at least the memory of those happy days is a perpetual benediction, and I look back upon the two years I spent at this school with the greatest delight. There were many things that might have been improved—and we can say the same of every medical school at that period—but I seem to have got much more out of it than our distinguished philosopher, J. Beattie Crozier, whose picture of the period seems rather hardly drawn. But, after all, as someone has remarked, instruction is often the least part of an education, and, as I recall them, our teachers in their life and doctrine set forth a true and lively word to the great enlightenment of our darkness. They stand out in the background of my memory as a group of men whose influence and example was most helpful. In William R. Beaumont and Edward Mulberry Hodder, we had before us the highest type of the cultivated English surgeon. In Henry H. Wright we saw the incarnation of faithful devotion to duty—too faithful, we thought, as we trudged up to the eight o'clock lecture in the morning. In W. T. Aikens a practical surgeon of remarkable skill and an ideal teacher for the general practitioner. How we wondered and delighted in the anatomical demonstrations of Dr. Richardson, whose infective enthu-

siasm did much to make anatomy the favourite subject among the students. I had the double advantage of attending the last course of Dr. Ogden and the first of Dr. Thorburn on materia medica and therapeutics. And Dr. Oldright had just begun his career of unselfish devotion to the cause of hygiene.

To one of my teachers I must pay in passing the tribute of filial affection. There are men here to-day who feel as I do about Dr. James Bovell—that he was one of those finer spirits, not uncommon in life, touched to finer issues only in a suitable environment. Would the Paul of evolution have been Thomas Henry Huxley had the Senate elected the young naturalist to a chair in this university in 1851? Only men of a certain metal rise superior to their surroundings, and while Dr. Bovell had that all-important combination of boundless ambition with energy and industry, he had that fatal fault of diffuseness, in which even genius is strangled. With a quadrilateral mind, which he kept spinning like a teetotum, one side was never kept uppermost for long at a time. Caught in the storm which shook the scientific world with the publication of the *Origin of Species*, instead of sailing before the wind, even were it with bare poles, he put about and sought a harbour of refuge in writing a work on Natural Theology, which you will find on the shelves of second-hand book shops in a company made respectable at least by the presence of Paley. He was an omniverous reader and transmutor, he could talk pleasantly, even at times transcendentally, upon anything in the science of the day, from protoplasm to evolution; but he lacked concentration and that scientific accuracy which only comes with a long training (sometimes indeed never comes), and which is the ballast of the boat. But the bent of his mind was devotional, and early swept into the Tractarian movement, he became an advanced Churchman, a good Anglican Catholic. As he chaffingly remarked one day to his friend, the Reverend Mr. Darling, he was like the waterman in Pilgrim's Progress, rowing one way, towards Rome, but looking steadfastly in the other direction, towards Lambeth. His "Steps to the Altar" and his "Lectures on the Advent" attest the earnestness of his convictions; and later in life, following the example of Linacre, he took orders and became another illustration of what Cotton Mather calls the angelical conjunction of medicine with divinity. Then, how well I recall the keen love with which he would engage in metaphysical discussions, and the ardour with which he studied Kant, Hamilton, Reed and Mill. At that day to the Rev. Prof. Bevan was intrusted the rare privilege of directing the minds of the thinking youths at the Provincial University into proper philosophical channels. It was rumoured that the hungry sheep looked up and were not fed.

I thought so at least, for certain of them, led by T. Wesley Mills, came over daily after Dr. Bovell's four o'clock lecture to reason high and long with him

> "On Providence, Foreknowledge, Will and Fate
> Fixed Fate, Freewill, Foreknowledge absolute."

Yet withal his main business in life was as a physician, much sought after for his skill in diagnosis, and much beloved for his loving heart. He had been brought up in the very best practical schools. A pupil of Bright and of Addison, a warm personal friend of Stokes and of Graves, he maintained loyally the traditions of Guy's and taught us to reverence his great masters. As a teacher he had grasped the fundamental truth announced by John Hunter of the unity of physiological and pathological processes, and, as became the occupant of the chair of the Institutes of Medicine, he would discourse on pathological processes in lectures on physiology, and illustrate the physiology of bioplasm in lectures on the pathology of tumours to the bewilderment of the students. When in September, 1870, he wrote to me that he did not intend to return from the West Indies I felt that I had lost a father and a friend; but in Robert Palmer Howard, of Montreal, I found a noble step-father, and to these two men and to my first teacher, the Rev. W. A. Johnson, of Weston, I owe my success in life—if success means getting what you want and being satisfied with it.

II.

Of the value of an introductory lecture I am not altogether certain. I do not remember to have derived any enduring benefit from the many that I have been called upon to hear, or from the not a few that I have inflicted in my day. On the whole I am in favour of abolishing the old custom, but as this is a very special occasion, with special addresses, I consider myself most happy to have been selected for this part of the programme. To the audience at large I fear that much of what I have to say will appear trite and commonplace, but bear with me, since, indeed, to most of you how good so ever the word, the season is long past in which it could be spoken to your edification. As I glance from face to face the most striking peculiarity is the extraordinary diversity that exists among you. Alike in that you are men and white, you are unlike in your features, very unlike in your minds and in your mental training, and your teachers will mourn the singular inequalities in your capacities. And so it is sad to think will be your careers; for one success, for another failure; one will tread the primrose path to the great bonfire, another the straight and narrow way to renown; some of the best of you will be stricken early on the road,

and will join that noble band of youthful martyrs who loved not their lives to the death; others, perhaps the most brilliant among you, like my old friend and comrade, Dick Zimmerman (how he would have rejoiced to see this day!), the Fates will overtake and whirl to destruction just as success seems assured. When the iniquity of oblivion has blindly scattered her poppy over us, some of you will be the trusted counsellors of this community, and the heads of departments in this Faculty; while for the large majority of you, let us hope, is reserved the happiest and most useful lot given to man—to become vigorous, whole-souled, intelligent general practitioners.

It seems a bounden duty on such an occasion to be honest and frank, so I propose to tell you the secret of my life as I have seen the game played, and as I have tried to play it myself. You remember in one of the Jungle Stories that when Mowgli wished to be avenged on the villagers he could only get the help of Hathi and his sons by sending them the master-word. This I propose to give you in the hope, yes, in the full assurance, that some of you at least will lay hold upon it to your profit. Though a little one, the master-word looms large in meaning. It is the open sesame to every portal, the great equalizer in the world, the true philosopher's stone which transmutes all the base metal of humanity into gold. The stupid man among you it will make bright, the bright man brilliant and the brilliant student steady. With the magic word in your heart all things are possible, and without it all study is vanity and vexation. The miracles of life are with it; the blind see by touch, the deaf hear with eyes, the dumb speak with fingers. To the youth it brings hope, to the middle-aged confidence, to the aged repose. True balm of hurt minds, in its presence the heart of the sorrowful is lightened and consoled. It is directly responsible for all advances in medicine during the past twenty-five centuries. Laying hold upon it Hippocrates made observation and science the warp and woof of our art. Galen so read its meaning that fifteen centuries stopped thinking and slept until awakened by the *De Fabrica* of Vesalius, which is the very incarnation of the master-word. With its inspiration Harvey gave an impulse to a larger circulation than he wot of, an impulse which we feel to-day. Hunter sounded all its heights and depths, and stands out in our history as one of the great exemplars of its virtues. With it Virchow smote the rock and the waters of progress gushed out; while in the hands of Pasteur it proved a very talisman to open to us a new heaven in medicine and a new earth in surgery. Not only has it been the touchstone of progress, but it is the measure of success in every-day life. Not a man before you but is beholden to it for his position here, while he who addresses you has that honour directly in consequence of having had it graven

on his heart when he was as you are to-day. And the Master-Word is *Work,* a little one, as I have said, but fraught with momentous sequences if you can but write it on the tables of your heart and bind it upon your foreheads. But there is a serious difficulty in getting you to understand the paramount importance of the work-habit as part of your organization. You are not far from the Tom Sawyer stage with its philosophy "that work consists of whatever a body is obliged to do and that play consists of whatever a body is not obliged to do."

A great many hard things may be said of the work-habit. For most of us it means a hard battle; the few take to it naturally; the many prefer idleness and never learn to love to labour. Listen to this: "Look at one of your industrious fellows for a moment, I beseech you," says Robert Louis Stevenson. "He sows hurry and reaps indigestion; he puts a vast deal of activity out to interest, and receives a large measure of nervous derangement in return. Either he absents himself entirely from all fellowship, and lives a recluse in a garret, with carpet slippers and a leaden inkpot; or he comes among people swiftly and bitterly, in a contraction of his whole nervous system, to discharge some temper before he returns to work. I do not care how much or how well he works, this fellow is an evil feature in other people's lives." These are the sentiments of an overworked, dejected man; let me quote the motto of his saner moments: "To travel hopefully is better than to arrive, and the true success is in labour." If you wish to learn of the miseries of scholars in order to avoid them, read Part I, Section 2, Member 3, Subsection XV of that immortal work, the Anatomy of Melancholy, and I am here to warn you against these evils, and to entreat you to form good habits in your student days.

At the outset appreciate clearly the aims and objects each one of you should have in view—a knowledge of disease and its cure, and a knowledge of yourselves. The one, a special education, will make you a practitioner of medicine; the other, an inner education, may make you a truly good man, four square and without a flaw. The one is extrinsic and is largely accomplished by teacher and tutor, by text and by tongue; the other is intrinsic and is the mental salvation to be wrought out by each one for himself. The first may be had without the second; any one of you may become an active practitioner, without ever having had sense enough to realize that through life you have been a fool; or you may have the second without the first, and, without knowing much of the art, you may have endowments of head and heart that make the little you do possess go very far in the community. With what I hope to infect you is a desire to have a due proportion of each.

So far as your professional education is concerned, what I shall say may make for each one of you an easy path easier. The multiplicity of the subjects to be studied is a difficulty, and it is hard for teacher and student to get a due sense of proportion in the work. We are in a transition stage in our methods of teachings, and have not everywhere got away from the idea of the examination as the "be-all and the end-all;" so that the student has constantly beorfe his eyes the magical letters of the degree he seeks. And this is well, perhaps, if you will remember that having, in the old phrase, commenced Bachelor of Medicine, you have only reached a point from which you can begin a life-long process of education.

So many and varied are the aspects presented by this theme that I can only lay stress upon a few of the more essential. The very first step towards success in any occupation is to become interested in it. Locke put this in a very happy way when he said, give a pupil "a relish of knowledge" and you put life into his work. And there is nothing more certain than that you cannot study well if you are not interested in your profession. Your presence here is a warrant that in some way you have become attracted to the study of medicine, but the speculative possibilities so warmly cherished at the outset are apt to cool when in contact with the stern realities of the class-room. Most of you have already experienced the all-absorbing attraction of the scientific branches, and nowadays the practical method of presentation has given a zest which was usually lacking in the old theoretical teaching. The life has become more serious in consequence, and medical students have put away many of the childish tricks with which we used to keep up their bad name. Compare the picture of the "sawbones" of 1842, as given in the recent biography of Sir Henry Acland, with their representatives to-day, and it is evident a great revolution has been effected, and very largely by salutary influences of improved methods of education. It is possible now to fill out a day with practical work, varied enough to prevent monotony, and so arranged that the knowledge is picked out by the student himself, not thrust into him, willy-nilly, at the point of the tongue. He exercises his wits, and is no longer a passive Strassbourg goose, tied up and stuffed to repletion.

How can you take the greatest possible advantage of your capacities with the least possible strain? By cultivating system. I say cultivating advisedly, since some of you will find the acquisition of systematic habits very hard. There are minds congenitally systematic; others have a life-long fight against an inherited tendency to diffuseness and carelessness in work. A few brilliant fellows try to dispense with it altogether, but they are a burden to their brethren and a sore

trial to their intimates. I have heard it remarked that order is the badge of an ordinary mind. So it may be, but as practitioners of medicine we have to be thankful to get into this useful class. Let me entreat those of you who are here for the first time to lay to heart what I say on this matter. Forget all else, but take away this counsel of a man who has had to fight a hard battle, and not always a successful one, for the little order he has had in his life, take away with you a profound conviction of the value of system in your work. I appeal to the freshmen especially, because you to-day make a beginning, and your future career depends very much upon the habits you will form during this session. To follow the routine of the classes is easy enough, but to take routine into every part of your daily life is a hard task. Some of you will start out joyfully as did Christian and Hopeful, and for many days wil journey safely towards the Delectable Mountains, dreaming of them and not thinking of disaster until you find yourselves in the strong captivity of Doubt and under the grinding tyranny of Despair. You have been over-confident. Begin again and more cautiously. No student escapes wholly from these perils and trials; be not disheartened, expect them. Let each hour of the day have its allotted duty, and cultivate that power of concentration which grows with its exercise, so that the attention neither flags nor wavers, but settles with a bull-dog tenacity on the subject before you. Constant repetition makes a good habit fit easily in your mind, and by the end of the session you may have gained that most precious of all knowledge—the power to work. Do not underestimate the difficulty you will have in wringing from your reluctant selves the stern determination to exact the uttermost minute on your schedule. Do not get too interested in one study at the expense of another, but so map out your day that due allowance is given to each. Only in this way can the average student get the best that he can out of his capacities. And it is worth all the pains and trouble he can possibly take for the ultimate gain—if he can reach his doctorate with system so ingrained that it has become an integral part of his being. The artistic sense of perfection in work is another much to be desired quality to be cultivated. No matter how trifling the matter on hand, do it with a feeling that it demands the best that is in you, and when done look it over with a critical eye, not sparing a strict judgment of yourself. This it is that makes anatomy a student's touch-stone. Take the man who does his "part" to perfection, who has got out all there is in it, who labours over the tags of connective tissue and who demonstrates Meckel's ganglion in his part—this is the fellow in after years who is apt in emergencies, who saves

a leg badly smashed in a railway accident, or fights out to the finish, never knowing when he is beaten, in a case of typhoid fever.

Learn to love the freedom of the student life, only too quickly to pass away; the absence of the coarser cares of after days, the joy in comradeship, the delight in new work, the happiness in knowing that you are making progress. Once only can you enjoy these pleasures. The seclusion of the student life is not always good for a man, particularly for those of you who will afterwards engage in general practice, since you miss that facility of intercourse upon which often the doctor's success depends. On the other hand sequestration is essential for those of you with high ambitions proportionate to your capacity. It was for such that St. Chrysostom gave his famous counsel, "Depart from the highways and transplant thyself into some enclosed ground, for it is hard for a tree that stands by the wayside to keep its fruit till it be ripe."

Has work no dangers connected with it? What of this bogie of overwork of which we hear so much? There are dangers, but they may readily be avoided with a little care. I can only mention two, one physical, one mental. The very best students are often not the strongest. Ill-health, the bridle of Theages, as Plato called it in the case of one of his friends whose mind had thriven at the expense of his body, may have been the diverting influence towards books or the profession. Among the good men who have studied with me there stand out in my remembrance many a young Lycidas, 'dead ere his prime," sacrificed to carelessness in habits of living anl neglect of ordinary sanitary laws. Medical students are much exposed to infection of all sorts, to combat which the body must be kept in first class condition. Grossteste, the great Bishop of Lincoln, remarked that there were three things necessary for temporal salvation—food, sleep and a cheerful disposition. Add to these suitable exercise and you have the means by which good health may be maintained. Not that health is to be a matter of perpetual solicitation but habits which favour the *corpus sanum* foster the *mens sana*, in which the joy of living and the joy of working are blended in one harmony. Let me read you a quotation from old Burton, the great authority on *morbi eruditorum*. There are "many reasons why students dote more often than others. The first is their negligence; other men look to their tools, a painter will wash his pencils, a smith will look to his hammer, anvil, forge; a husbandman will mend his plough-irons, and grind his hatchet, if it be dull; a falconer or huntsman will have an especial care of his hawks, hounds, horses, dogs, &c.; a musician will string and unstring his lute, &c.; only scholars neglect that instrument, their brain and spirits (I mean) which they daily use."*

* Quotation mainly from Marsilius Ficinus.

Much study is not only believed to be a weariness of the flesh, but also an active cause of ill-health of mind, in all grades and phases. I deny that work, legitimate work, has anything to do with this. It is that foul fiend Worry who is responsible for a large majority of the cases. The more carefully one looks into the causes of nervous breakdown in students, the less important is work *per se* as a factor. There are a few cases of genuine overwork, but they are not common. Of the causes of worry in the student life there are three of prime importance to which I may briefly refer.

An anticipatory attitude of mind, a perpetual forecasting, disturbs the even tenor of his way and leads to disaster. Years ago a sentence in one of Carlyle's essays made a lasting impression on me: "Our duty is not to *see* what lies dimly at a distance, but to *do* what lies clearly at hand." I have long maintained that the best motto for a student is, "take no thought for the morrow." Let the day's work suffice; live for it, regardless of what the future has in store, believing that to-morrow should take thought for the things of itself. There is no such safeguard against the morbid apprehensions about the future, the dread of examinations and the doubt of ultimate success. Nor is there any risk that such an attitude may breed carelessness. On the contrary, the absorption in the duty of the hour is in itself the best guarantee of ultimate success. "He that regardeth the wind shall not sow, and he that observeth the clouds shall not reap," which means you cannot work profitably with your mind set upon the future.

Another potent cause of worry is an idolatry by which many of you will be sore let and hindered. The mistress of your studies should be the heavenly Aphrodite, the motherless daughter of Uranus. Give her your whole heart, and she will be your protectress and friend. A jealous creature, brooking no second, if she finds you trifling and coquetting with her rival, the younger, earthly Aphrodite, daughter of Zeus and Dione, she will whistle you off and let you down the wind to be a prey, perhaps to the examiners, certainly to the worm regret. In plainer language, put your affections in cold storage for a few years, and you will take them out ripened, perhaps a bit mellow, but certainly less subject to those frequent changes which perplex so many young men. Only a grand passion, an all-absorbed devotion to the elder goddess can save the man with a congenital tendency to philandering, the flighty Lydgate who sports with Celia and Dorothea, and upon whom the judgment ultimately falls in a basil-plant of a wife like Rosamond.

And thirdly, one and all of you will have to face the ordeal of every student in this generation who sooner or later tries to mix the waters of science with the oil of faith. You can have a great deal of both if

you only keep them seperate. The worry comes from the attempt at mixture. As general practitioners you will need all the faith you can carry, and while it may not always be of the conventional pattern, when expressed in your lives rather than your lips, the variety is not a bad one from the standpoint of St. James, and may help to counteract the common scandal alluded to in the celebrated diary of that gossipy old parson-doctor, the Rev. John Ward: "One told the Bishop of Gloucester that he imagined physitians of all other men the most competent judges of all others affairs of religion; and his reason was because they were wholly unconcerned with it."

III.

Professional work of any sort tends to narrow the mind, to limit the point of view and to put a hall-mark on a man of a most unmistakable kind. On one hand are the intense, ardent natures, absorbed in their studies and quickly losing interest in everything but their profession, while other faculties and interests "fust" unused. On the other hand are the bovine brethren, who think of nothing but the treadmill and the corn. From very different causes, the one from concentration, the other from apathy, both are apt to neglect those outside studies that widen the sympathies and help a man to get the best there is out of life. Like art, medicine is an exacting mistress, and in the pursuit of one of the scientific branches, sometimes, too, in practice, not a portion of a man's spirit may be left free for other distractions, but this does not often happen. On account of the intimate personal nature of his work, the medical man, perhaps more than any other man, needs that higher education of which Plato speaks,—"that education in virtue from youth upwards, which enables a man eagerly to pursue the ideal perfection." It is not for all, nor can all attain to it, but there is comfort and help in the pursuit, even though the end is never reached. For a large majority the daily round and the common task furnish more than enough to satisfy their heart's desire, and there seems no room left for anything else. Like the good, easy man whom Milton scores in the Areopagitica, whose religion was a "traffic so entangled that of all mysteries he could not skill to keep a stock going upon that trade" and handed it over with all the locks and keys to "a divine of note and estimation," so is it with many of us in the matter of this higher education. No longer intrinsic, wrought in us and ingrained, it has become, in Milton phrase, a "dividual movable," handed over nowadays to the daily press or to the hap-hazard instruction of the pulpit, the platform or the magazines. Like a good many other things, it comes in a better and more enduring form if not too consciously sought. The all-

important thing is to get a relish for the good company of the race in a daily intercourse with some of the great minds of all ages. Now, in the spring-time of life, pick your intimates among them, and begin a systematic cultivation of their works. Many of you will need a strong leaven to raise you above the level of the dough in which it will be your lot to labour. Uncongenial surroundings, an ever-present dissonance between the aspirations within and the actualities without, the oppressive discords of human society, the bitter tragedies of life, the *lacrymae rerum*, beside the hidden springs of which we sit in sad despair —all these tend to foster in some natures a cynicism quite foreign to our vocation, and to which this inner education offers the best antidote. Personal contact with men of high purpose and character will help a man to make a start—to have the desire, at least, but in its fulness this culture—for that word best expresses it—has to be wrought out by each one for himself. Start at once a bed-side library and spend the last half hour of the day in communion with the saints of humanity. There are great lessons to be learned from Job and from David, from Isaiah and St. Paul. Taught by Shakespeare you may take your intellectual and moral measure with singular precision. Learn to love Epictetus and Marcus Aurelius. Should you be so fortunate as to be born a Platonist, Jowett will introduce you to the great master through whom alone we can think in certain levels, and whose perpetual modernness startles and delights. Montaigne will teach you moderation in all things, and to be "sealed of his tribe" is a special privilege. We have in the profession only a few great literary heroes of the first rank, the freindship and counsel of two of whom you cannot too earnestly seek. Sir Thomas Browne's *Religio Medici* should be your pocket companion, while from the Breakfast Table Series of Oliver Wendell Holmes you can glean a philosophy of life peculiarly suited to the needs of a physician. There are at least a dozen or more works which would be helpful in getting that wisdom in life which only comes to those who earnestly seek it.

A conscientious pursuit of Plato's ideal perfection may teach you the three great lessons of life. You may learn to consume your own smoke. The atmosphere of life is darkened by the murmurings and whimperings of men and women over the non-essentials, the trifles that are inevitably incident to the hurly burly of the day's routine. Things cannot always go your way. Learn to accept in silence the minor aggravations, cultivate the gift of taciturnity and consume your own smoke with an extra draught of hard work, so that those about you may not be annoyed with the dust and soot of your complaints. More than any other the practitioner of medicine may illustrate the second great lesson, that we are here not to get all we can out of life for ourselves, but

to try to make the lives of others happier. This is the essence of that oft-repeated admonition of Christ. "He that findeth his life shall lose it, and he that loseth his life for my sake shall find it," on which hard saying if the children of this generation would only lay hold, there would be less misery and discontent in the world. It is not possible for any one to have better opportunities to live this lesson than you will enjoy. The practice of medicine is an art, not a trade, a calling, not a business, a calling in which your heart will be exercised equally with your head. Often the best part of your work will have nothing to do with potions and powders, but with the exercise of an influence of the strong upon the weak, of the righteous upon the wicked, of the wise upon the foolish. To you as the trusted family counsellor the father will come with his anxieties, the mother with her hidden grief, the daughter with her trials and the son with his follies. Fully one-third of the work you do will be entered in other books than yours. Courage and cheerfulness will not only carry you over the rough places of life, but will enable you to bring comfort and help to the weak-hearted and will console you in the sad hours when, like Uncle Toby, you have "to whistle that you may not weep."

And the third great lesson you may learn is the hardest of all—that the law of the higher life is only fulfilled by love of charity. Many a physician whose daily work is a round of beneficence will say hard things and will think hard thoughts of a colleague. No sin will so easily beset you as uncharitableness towards your brother practitioner. So strong is the personal element in the practice of medicine, and so many are the wagging tongues in every parish, that evil speaking, lying and slandering find a shining mark in the lapses and mistakes which are inevitable in our work. There is no reason for discord and disagreement, and the only way to avoid trouble is to have two plain rules. From the day you begin practice never under any circumstances listen to a tale told to the detriment of a brother practitioner. And when any dispute or trouble does arise, go frankly, ere sunset, and talk the matter over, in which way you may gain a brother and a friend. Very easy to carry out, you may think! Far from it; there is no harder battle to fight. Theoretically there seems to be no difficulty, but when the concrete wound is rankling and after Mrs. Jones has rubbed in the cayenne pepper by declaring that Dr. J. told her in confidence of your shocking bungling, your attitude of mind is that you would rather see him in purgatory than make advances towards reconciliation. Wait until the day of your trial comes and then remember my words.

And in closing may I say a few words to the younger practitioners in the audience whose activities will wax not wane with the growing

years of the century which opens so auspiciously for this school, for this city and for our country. You enter a noble heritage, made by no efforts of your own, but by the generations of men who have unselfishly sought to do the best they could for suffering mankind. Much has been done, much remains to do; a way has been opened, and to the possibilities in the scientific development of medicine there seems to be no limit. Except in its application, as general practitioners you will not have much to do with this. Yours is a higher and more sacred duty. Think not to light a light to shine before men that they may see your good works; contrariwise, you belong to the great army of quiet workers, physicians and priests, sisters and nurses, all over the world, the members of which strive not neither do they cry, nor are their voices heard in the streets, but to them is given the ministry of consolation in sorrow, need and sickness. Like the ideal wife of whom Plutarch speaks, the best doctor is often the one of whom the public hears least; but nowadays in the fierce light that beats upon the hearth it is increasingly difficult to live the secludede life in which our best work is done. To you the silent workers of the ranks, in villages and country districts, in the slums of our large cities, in the mining camps and factory towns, in the homes of the rich and in the hovels of the poor—to you is given the harder task of illustrating in your lives the old Hippocratic standards of Learning, of Sagacity, of Humanity and of Probity. Of learning that you may apply in your practice the best that is known in our art, and that with the increase in your knowledge there may be an increase in that priceless endowment of Sagacity, so that to all everywhere skilled succour may come in the hour of urgent need. Of a Humanity that will show in your daily life tenderness and consideration to the weak, infinite pity to the suffering and a broad charity to all. Of a Probity that will make you under all circumstances true to yourselves, true to your high calling and true to your fellow men.

TYPHOID FEVER: AN ANALYSIS OF 717 CASES.

BY

JOHN MCCRAE, B.A., M.B. (Tor.)

From the Pathological Laboratory of the Montreal General Hospital.

This series comprises all cases of typhoid fever in which the diagnosis is reasonably sure, admitted to the wards of the Montreal General Hospital, from January 1st, 1897, to December 31st, 1902; several cases admitted after perforation had occurred are included, as reasonably these must be included in a hospital death rate.

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Time of Incidence.—The minimum admissions occur in February, the number gradually increasing to the end of August, the latter month showing the maximum number. Despite the severity of the winter, the number existing up to the beginning of February is noteworthy: Per cent. of admissions—January, 4.9; February, 2.5; March, 2.6; April, 5.0; May, 7.3; June, 9.3; July, 10.8; August, 15.8; September, 12.2; October, 12.7; November, 9.4; December, 7.3.

Mortality.—The mortality was 66, or 9.2 per cent.; cases in the male sex were 65.3 per cent., in the female, 34.7 per cent. Of the deaths, 71.2 per cent. were males, 28.8 per cent. were females.

Age in Years.	No. of Cases.	Percentage of Cases.	No. of Deaths.	Percentage of Deaths. (approx.)	One Case Died in (approx.) every
1 to 5	7	.98	1	1.5	7
6 " 10	31	4.3	1	1.5	31
11 " 15	67	9.3	2	3.	33
16 " 20	160	22.4	12	18.	13
21 " 25	174	24.4	14	21.	12
26 " 30	117	16.3	10	15.	11
31 " 35	70	9.8	7	10.5	10
36 " 40	47	6.5	6	9.	8
41 " 45	20	2.8	5	7.5	4
46 " 50	15	2.1	5	7.5	3
51 " ..	6	.8	3	4.5	2

Etiology.—Previous attack of typhoid is described in 21 cases (2.96 per cent.); 1 case, one year before; 3 cases, three years before; 2 cases, four years before; 2 cases, seven years before; 2 cases, eight years before; 1 case, nine years before; 2 cases, ten years before; 1 case eleven years before; 1 case fourteen years before, and 1 case, twenty-one years before; in two the time is unstated. Four cases developed in the hospital; one patient developed the disease after thirty days in the hospital, two nurses and one hospital orderly contracted it whilst in attendance on typhoid patients.

Duration.—Excluding fatal cases, and a small number in which the beginning of the disease could not be accurately determined, the average duration of the febrile period for 640 cases was 27.2 days. The length of illness and convalescence, measured from the day of onset to the day on which the patient was discharged, averaged for 619 cases 52.2 days.

Degree of Fever.—For purposes of classification, arbitrary divisions were made between high and moderate fever; fever which was below 104° was classed "moderate," 104° or over during four days

(or less) was classed "moderate with occasional high range," and "high" was used to describe fever which reached 104° on more than four days. Of 713 cases, 419, or 59 per cent. were moderate; 110, or 15 per cent. were moderate with occasional high range; 184, or 26 per cent. were high. As a rule fatal cases showed high temperature, although in 66 fatal cases the temperature was moderate in 21, or 32 per cent.

The Cardinal Points of Diagnosis.—The so-called Widal test was tried in 678 cases; it was positive in 629, or 92.77 per cent. of cases tried.

Ehrlich's test (Diazo reaction) was tried in 512 cases; it was positive in 344, or 67.2 per cent. of cases tried.

Rose spots were observed in 467 cases, equivalent to 65 per cent. of all cases.

The spleen was palpated in 341 cases, equivalent to 47.5 per cent. of all cases.

Relapse.—A true relapse was present in 64 cases, or 8.9 per cent.; six cases had two, and one case three relapses. In 51 cases the febrile period averaged 25 days, the interval of normal temperature, 6.3 days, and the relapse, 15.5 days; four second relapses averaged 12 days normal temperature, followed by 16 days relapse; a third relapse was preceded by 14 days normal temperature, and lasted 10 days. Intercurrent relapse occurred in 48 cases, or 66.8 per cent., in 46 of which the main febrile period averaged 25.9 days, the relapse, 18.8 days; many cases of long continued fever without remission are similar to intercurrent relapse, but none have been included save those which show a distinct relapse rising gradually from a well defined minimum point of the fever.

Recrudescence occurred in 61 cases, or 8.5 per cent.; "steeples" in 49, or 6.9 per cent., thrice, immediately after semi-solid food. It will be seen that roughly 31 per cent. of all cases suffered from a rise of temperature to a noticeable degree after the regular course was finished.

Frequent Complications occurred as follows:—

Bronchitis	192 cases	26.8 per cent.
Neuritis	26 "	3.5 "
Abscess	47 "	6.5 "
Phlebitis	25 "	3.4 "
Otitis Media	16 "	2.2 "

Neuritis, including tender toes, followed bath treatment in 19 cases, sponging in 1, and antipyretics in 4 cases. Abscesses were most frequent in the axillæ, affecting the rest of the body, limbs, and head in the order named. Staphylococcus was found in 7 cases, Eberth's bacillus, never. In 18 cases phlebitis affected the left side in 12 cases, the right in 3, both in 3; it never occurred before the middle of the third week, and often not until the sixth.

Symptoms of Onset.—No note was made of complaint of anorexia; the following common signs of onset were noted:—

Weakness, definite complaint	55.	per cent. of	317	cases.
Headache	66.4	"	717	"
Pain in back, limbs, etc	37.4	"	717	"
Pain in abdomen	22.7	"	717	"
Tenderness in abdomen upon pressure	12.5	"	400	"
Constipation	21.2	"	717	"
*Diarrhœa	25.4	"	717	"
Vomiting	20.6	"	717	"
Epistaxis	15.	"	717	"
Chill, definite rigor	8.6	"	717	"
Sore throat	3.5	"	717	"

Symptoms of the Course.—The condition of the bowels was as follows: constipation marked the course of the disease in 345 cases, 48 per cent.; diarrhœa, in 118, 16.5 per cent.; the bowels were normal during the disease in 95 cases, 13 per cent. The symptoms so much complained of at onset rarely persisted, headache during the course being noted in but 38 cases, body-ache in 13; delirium was noted in 102, 14.2 per cent.; epistaxis was present during the course in 24 cases, 3.3 per cent.; vomiting in 72, 10 per cent.; chill in 36 cases, 5 per cent.; the last was frequently explicable by some complication which had supervened. Pain in the abdomen is an extremely frequent symptom of the course of typhoid fever; in this series it has been noted in only 22.7 per cent. of the cases, although it actually occurs in a much greater percentage of all cases; tenderness upon pressure is noted in 50, 12½ per cent. of 400 cases. Abdominal pain occurs at any period of the disease, and complaint of it will depend largely upon the character of the patient. Dicrotism of the pulse was mentioned in 106 cases, 14.8 per cent.

Infrequent Complications.—The following are stated in numbers of cases:—

Integument, etc.	—Carbuncle	1	
	Cellulitis	2	
	Conjunctivitis	2	
	Erysipelas	1	
	Erythema	7	
	Furuncle	6	
	Herpes	3	
	Tache cerebrale	6	
	Ulcers	1	
	Urticaria	1	
Alimentary system.	—Cholecystitis	3	
	Glossitis	3	(1 syphilitic)
	Icterus	2	
	Parotitis	1	
	Stomatitis	4	

*In 2.2 per cent. only of these is the diarrhœa stated to be the result of purgative medicine; this figure is probably far too small.

Respiratory system.—Empyema		2
	Pharyngitis, etc	8
	Pleuritis	13
	Pneumonia	8
Osseous muscular system, etc.—Arthritis		1
	Mastoiditis	1
	Myositis	2
	Osteomyelitis	5
	Periostitis	4
Generative system.—Abortion		2
	Mastitis	2
Urinary System.—Cystitis		9
	Pyelitis	3
Nervous System.—*Paralysis		2
	Post-typh. insanity	5
	Tetany	2
Circulatory system.—Dilatation of heart		14
	Pericarditis	1

The number of cases noted to have had cardiac dilatation is doubtless far from the true number, but slight differences of size of the heart, and transitory murmurs, indicating temporary dilatations are uncertain signs, and in the hands of house physicians of comparatively short experience are apt to be overlooked; so also many passing conditions of myocarditis of slight degree must escape notice.

ASSOCIATED CONDITIONS.—

Alcoholism	1	Orchitis	1
Arterio-sclerosis	1	Parasites	..
Cardiac valve lesions	16	Ascaris	5
Chlorosis	3	Taenia	1
Diphtheria	1	†Pregnancy	5
Epilepsy	2	Rheumatism, acute	2
Gonorrhœa	4	Syphilis	3
Hysteria	4	Tuberculosis pul	6
Neuritis, alcoholic	1		

HÆMORRHAGE: Hæmorrhage occurred in 72 cases, of which 26 proved fatal; in 11 cases hæmorrhage and perforation were associated. In 31 of these 72 cases, there are notes of the time at which food, other than purely liquid, was given; of these 31 cases, 12 had such food before hæmorrhage occurred. Although the notes are not absolutely explicit, it may be presumed that such diet was continued up to the time at which hæmorrhage occurred, and the space of time between the administration of such food and the occurrence of hæmorrhage varied from a few hours up to 29 days; the exact figures are as follows : immediately, 3 days, 5, 6, 7, 9, 9, 10, 11, 12, 12, 13, 26, 29.

* One case had the muscles of the face partially paralysed, the other the muscles of deglutition.

† In two cases abortion at 1st and 2nd month occurred ; pregnancies of 5, 6½ and 7 months were uninterrupted.

Hæmorrhage occurred oftenest at the end of the second week, and at the middle of the third. By weeks it occurred as follows:—

1st week	1 case
2nd "	22
3rd "	20
4th "	15
5th "	4
6th "	7
7th "	1

By days it occurred as follows:—

4— 7th day	1	25—28 day	10
8—12 "	10	29—31 "	2
11—14 "	12	32—35 "	2
15—17 "	8	36—38 "	2
18—21 "	12	39—42 "	5
22—24 "	5	43—45 "	1

The earliest initial hæmorrhage was upon the fifth day, the latest on the forty-fourth day. This complication occurred oftenest, proportionately, in cases treated by baths, and least often, proportionately, in those treated by antipyretics.

PERFORATION.—As stated above, perforation occurred 43 times; 23 cases were operated upon, of which 6 recovered. These six were operated upon at various times (from $1\frac{1}{2}$ to 15 hours) after perforation had occurred.

Perforation was accompanied by sudden pain in 21 cases, rigidity was present almost immediately in 7 cases, but it was noted that it was absent or occurred after a lapse of ten hours in 7 cases; decided drop in temperature was noted in only 4 cases; a rise of temperature was the earliest sign in 5 cases; rise in pulse is noticed as being marked in 5 cases.

These figures do not represent the frequency of the various signs at all properly, but they do indicate the relative importance of sudden pain, and the fact that rigidity cannot be depended upon as a diagnostic sign.

There is no symptom or group of symptoms that may be depended upon to indicate that perforation has occurred; the sudden abdominal pain is the most frequently present; it may often be masked by the apathetic condition of the patient, and may pass off rapidly. Due weight must be given to any reports of the nurse that the patient has cried out with pain, and it must be remembered that such sudden pain often occurs without perforation.

The large number of perforations in this series, and the fortunate outcome of six of the operated cases excuses a short digression upon

the question of operation. Here the exploratory laparotomy occupies its most honorable place; the hope in the far-off future of saving any large percentage of perforation cases rests in the earliest possible recognition and operation; the early certain recognition is not possible, and the surgeon must operate not when he knows there is perforation, but often when he only suspects it; he must set behind his back his "record" and remember that it requires more courage to operate upon an uncertain than upon a certain case. We must teach on all hands that to open the abdomen when perforation has been suspected and has not occurred, is to be counted no mistaken judgment on his part, but an indication of honorable zeal—a clear subordination of his own interests to those of the patient. Let it not be replied to this that it is impracticable in "private practice;" naturally it is, but it need not be so in the twenty-first century if the seeds be sown to-day; nor let it be said that if one waits one often finds that the sudden pain and the other symptoms were misleading and the "masterly inactivity" was justified; such an argument is plausible and misleading. Perhaps there are none of us to-day who are ready to advise operation in all such cases, but it is our duty to teach the triviality of the abdominal section compared with the chances incurred without it.

The Widal Test.—The requirements demanded for a positive result have always been strict; a positive reaction requires cessation of movement, and clumping, the time limit being from twenty to thirty minutes, the dilution approximately 1 in 20 to 1 in 40.

As stated above, the test was present in 92.77 per cent. of all cases tried; in the cases where it was found negative at first and repeated until positive, the reaction was found in 213 cases to appear upon the 14.7th day of the disease. The earliest day on which it was found present was the 4th day; it did not appear earlier in children than in adults. It appeared in 28 cases out of 678 on the 7th day, and in 29 cases, earlier.

The Urine.—Records of the urinary examination are to hand in 575 cases, of which 264, 46 per cent., showed albumen at sometime during the course of the disease; casts were present in 162, 28.2 per cent., and both together were found in 136 cases, 23.6 per cent., of those examined. The co-existence of these two indicate the presence of a parenchymatous nephritis, but its slightness of degree often does not warrant the use of the term acute nephritis in the sense in which that term is generally understood.

The Ehrlich (Diazo-reaction) was tried in 512 cases, and was present in 344, 67.2 per cent.; unfortunately, it was not tried day by day as a routine, but the average of 340 cases shows that it was present on the

11.8th day. It was noticed to have disappeared in 132, on an average of 9.7 days after it was first observed. It reappeared in 7 cases, and was present yet a third time in one case.

THE DISEASE IN CHILDREN.—Up to the age of 15 years, 105 cases occurred. Under the age of 2 years there was only one case, a child of 13 months, in which the diagonsis was confirmed by autopsy.

DURATION.—Excluding fatal and complicated cases, as well as those where intercurrent relapse was present, the duration of the disease was as follows:—

26 cases from 1 to 9 years averaged 20 days.
56 cases from 10 to 14 years " 21 "

Stated more particularly the figures are:—

Average of 7 cases from	1	—	5	years	20.3 days.
19 " "	6	—	10	"	20 "
6 aged	10			years	21 "
9 "	11			"	19 "
10 "	12			"	22 "
17 "	13			"	23.4 "
14 "	14			"	18.8 "

DEGREE:—Of 31 cases in children up to 10 years of age, 27 ran a fever of moderate course, 87 per cent.; of 64 cases from 10 to 14 years, the fever was moderate in 54, 84 per cent.

SYMPTOMS, ETC.—Of 30 cases under 10 years of age, the following were observed:—

Rose spots	14	Recrudescence	3
Diarrhœa, onset 5, course.	7	Hæmorrhage	1
Delirium	3	Perforation	1
Bronchitis	8	Albumen in urine	6
Epistaxis	3	Casts in urine	4
Relapse	5		

Of 66 cases from 10 to 14 years, inclusive, the following were noted:—

Rose spots	36	Recrudescence	9
Diarrhœa, onset 17, course.	6	Hæmorrhage	2
Bronchitis	11	Perforation	1
Delirium	12	Albumen in urine	8
Epistaxis	14	Casts in urine	4
Relapse	6		

Compared with the whole series, the following occurred less often in children: rose spots, hæmorrhage, perforation, bronchitis, and albumen and casts in the urine. The following were found oftener in children: delirium, relapse, and recrudescence; it is to be noted that the diarrhœa and epistaxis were found in children in about the same percentage as throughout the series. A moderate degree of fever is the rule and the duration is shorter in children.

TREATMENT.—Three courses of treatment have been followed during the period covered by this series; 36 patients received no treatment, 439 cold baths, 94 cold water or alcohol spongings, and 148 antipyretics.

The routine procedure of the baths has been the administration of the first bath at 90° or 85°, second bath 10° lower, third and all succeeding baths at 70° or 75°, always with ice; duration 10 minutes; cold kept upon the head; bath administered by two persons rubbing or sponging; whiskey given after the bath if indicated. The bath is given every four hours if temperature is over $102^{2}/_{5}°$

Spongings last twenty minutes, are given between blankets, alcohol or blocks of ice being used.

The antipyretic treatment consists of phenacetin, grs. V, alternating with salol, grs. V; one or the other is given every four hours, unless contraindicated; to this a tepid sponging once or twice daily is added.

It must be understood that these courses of treatment have necessarily varied according to the individual practice of physicians in whose services the cases have been; and that each one may vary his practice from time to time, but a general and concise statement has been attempted.

A brief comparison is made, I.—stated in number of cases:

	Cases.	Deaths.	Hæmorrhages.	Perforation.	Delirium.	Bronchitis
Baths	439	48	54	24	67	103
Antipyretics.	148	14	9	10	21	56
Spongings...	94	4	8	4	11	22

II.—Percentages.

	Percent. of Cases.	Percent. of Deaths.	Percent. of Hæm.	Percent. of Perfor.	Percent. of Delir.	Percent. of Bronch.
Baths.....	64.4	72.6	76.	63.1	67.6	56.9
Antipyretics	21.7	21.	12.7	26.3	21.2	30.9
Spongings	13.8	6.4	11.3	10.5	11.1	12.1

The deduction that the "sponging" treatment is the best of the above is nullified by the fact that the least severe cases are treated by this method; on the other hand, the high percentage of hæmorrhages and perforations credited to the "bath treatment" is to be considered along with the fact that this method was used in nearly two-thirds of all cases, and that the number of very severe cases falling to it would consequently be proportionately great. The small number of hæmorrhages referrable to the antipyretic treatment, and the large number referable to the baths, are indications of the relative height of circulatory strength in a depressant and stimulant treatment, respectively. The relatively high number of cases of delirium in the bath treatment

is due, doubtless, to the severity of some cases included; and it is to be remembered that the delirium of to-day is generally little more than mental wandering. The series makes, therefore, no marked distinction in favor of any form of treatment, save that in the bath treatment there are more cases of hæmorrhage and neuritis, and fewer of bronchitis, whereas, in the antipyretic treatment, hæmorrhage is comparatively infrequent, and bronchitis moderately frequent. It is difficult to understand why any course of treatment should predispose to bronchitis, and it is likely that the differences are due to season and climate.

DIET.—In mose cases strictly liquid diet is given, though in a considerable number of cases, custard, poached egg, and other semi-solids are given even from the first week of the disease. The day on which this kind of food was earliest given is noted in 381 cases. In 73 this was after five weeks, and in 92 it was after defervescence, leaving 216 in which semi-solids were given during the disease before normal temperature was reached. In these 216 cases, there occurred at different times the following:—

Hæmorrhage	12	times (once immediately after ingestion.)
Perforation	7	"
Relapse	9	"
Intercurrent relapse	11	"
Recrudescence	20	"

These figures are all less than the proportionate numbers in the whole series, but it is to be remembered that the slighter cases only are allowed semi-solids. The following facts, too, must be regarded before a decision is made. Of 72 cases in which hæmorrhage occurred, the time of giving semi-solids was noted in 31; in 12 of these, semi-solid food was given previous to the occurrence of hæmorrhages. In 43 perforations the day of giving semi-solids is noted in 7; in all 7 it was given before perforation.

ITS EFFECT UPON THE DURATION OF DISEASE.—The average duration of 185 moderately uncomplicated cases was 23.6 days; semi-solid food was given in the first fourteen days and in 125 cases, of which 40 ran a course of twenty-one days or less, 47 ran from twenty-one to twenty-eight days, and 36 over twenty-eight days. Sixty-three cases in which semi-solids were given in the first 9 days averaged 27 days. When observing the results of semi-solid food it must not be forgotten that milk, if it becomes curdled in the stomach, is practically a semi-solid.

The question of food is a vexed one and no rule will apply to all cases; it may be said that any food which reaches the seat of disease in any other than perfectly fluid form is bad.

A BRAIN CONTAINING GAS CYSTS OF MICROBIC ORIGIN.

BY

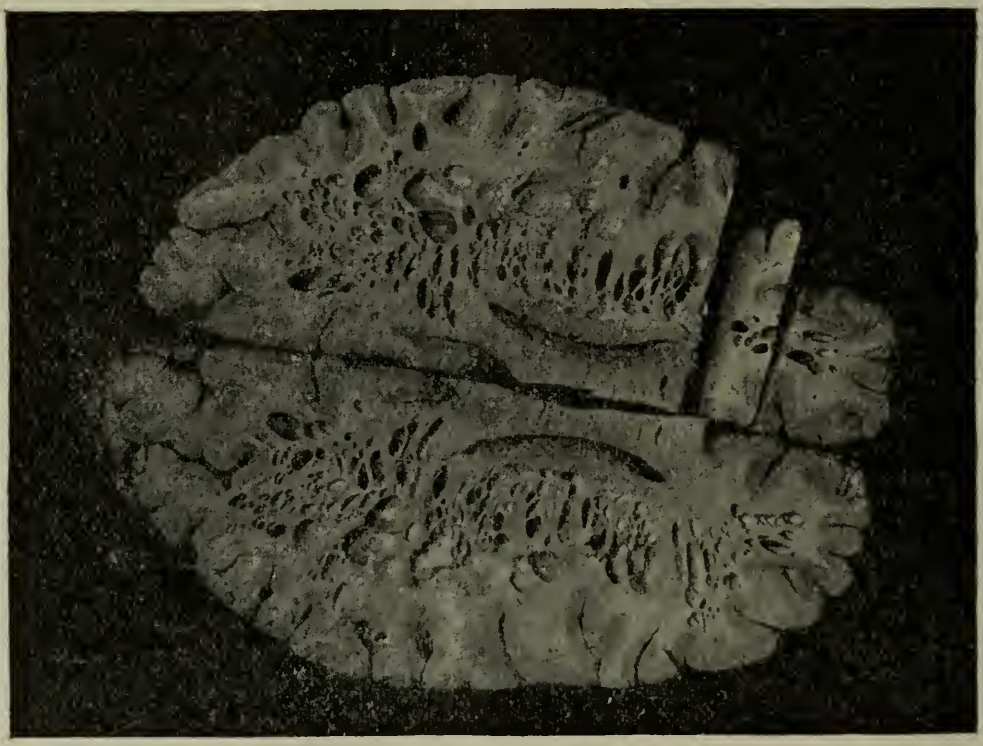
MALCOLM MACKAY, B.A., M.D.

This brain was obtained from a case of typhoid fever which died at the Royal Victoria Hospital in April, 1903, of hæmorrhage and perforation. The autopsy was performed 24 hours after death, and the following conditions were found.

The contents of the thorax were fairly normal, although the heart was large and fatty, and its muscle somewhat cloudy. The abdominal walls appeared to be very tense, and the abdomen prominent, and on opening the peritoneum there was a rapid escape of gas, which burned with a pale blue flame on being ignited. The intestines, which contained a considerable quantity of blood, were distended, and the Peyer's patches markedly inflamed. About 30 cm. above the ileo-cæcal valve, a pin-hole perforation was found, and close beside it an eroded blood-vessel,—evidently the source of the hæmorrhage. The liver was flabby, pale, and friable, and section showed that it was a typical "foaming liver" with bubbles and small cavities upon the cut surface. A portion taken from the centre of this organ floated in water, and microscopical examination revealed bacilli in the walls of the cavities. When the brain was removed, nothing abnormal could be seen in the meninges, hemispheres, convolutions, or basal vessels, and it was at once placed in a ten per cent. formalin solution, without being cut. Sections were made three weeks later, and the peculiar 'Gruyère cheese' appearance was noticed for the first time. Cavities varying in size from a bean to a pin's head were seen scattered throughout the brain. None of these air spaces were nearer than 1 cm. to the external surface, and they became larger and more numerous towards the centre of the hemispheres, where the brain tissue assumed the appearance and consistence of a sponge. In the region of the internal capsule the cavities were particularly numerous, being separated only by very thin walls of brain substance. The cerebellum showed similar though less marked changes, while the mid brain, pons and medulla, were intact. No softening or signs of inflammation could be detected anywhere.

This curious appearance at once suggested the cause, and a smear from the inside of one of the cysts showed a stout bacillus with rounded ends, found singly, or in pairs, chains or clumps, and taking all the ordinary stains as well as Gram's iodine stain. Cultures of course could not be made, but a bacillus having the above mentioned morphological and staining characteristics, which at the time produces gas, is in all probability the Bacillus Aerogenes Capsulatus, or, according to the more modern terminology, the Bacillus Welchii.

A section through the affected area stained with hæmatoxylin and eosin, when examined under the microscope, shows that the smooth cyst wall is formed by the surrounding brain substance, without a lining or limiting membrane of any description. Here and there a slight roughness, with a narrow band of diffusely staining hyaline material can be made out, showing degeneration of tissue, but as a rule the nerve elements are intact and take the stain perfectly, no small celled infiltration is to be seen, nor can any inflammatory action, or attempt at repair, be detected. With an oil immersion, or even a number seven lens, groups of bacteria are found in the cyst walls, and most of the capillaries are



positively choked with them, while some of the larger vessels with thick walls also contain vast numbers.

In regard to the period of time at which the changes took place, I think that there can be little hesitation in saying that they occurred post mortem, and continued after the brain was placed in formalin. For in the first place, this would account for the lesions being found only in the more central parts of the brain, as the formalin would soon penetrate the pons and medulla, while an appreciable time would elapse before it reached the centre of the hemispheres. Again, absence of inflammatory reaction throughout the nervous system and lack of evidence of a general ante mortem infection would point to the same conclusion. The characters of the bacillus still further emphasize this view, for as W. Welch[1] says in speaking of such conditions: "In the

1. Johns Hopkins Bulletin 1899 and 1900.

great majority of the instances in which gas bubbles are found in the blood and internal organs at autopsy, the evidence is in support of the view that the development of the gas is a purely post mortem phenomenon. Certainly, the greatest caution should be exercised in the interpretation of any such cases as vital processes, even in early autopsies without ordinary putrefaction."

Reuling and Herring[2] first reported a case of emphysema of the brain due to bacteria, and W. T. Howard[3] followed with four others, in two of which he obtained cultures. These authors point out that similar lesions of the brain have been described before, but that an explanation of the process has either not been attempted, or has been put down to some other cause, such as shrinkage from the hardening fluid, rarefying encephalitis, absorption of nerve tissue by pressure. The probability is, that in a large number of these instances the cysts were produced by bacteria, as the descriptions fit in so accurately with the findings in those cases in which bacilli have been unquestionably the cause.

It seems that one of the chief reasons for the lack of examples of this condition, is that a post mortem examination of the brain is the exception rather than the rule, and doubtless the number of cases reported will be multiplied as complete autopsies become more common.

TWO CASES OF GONORRHŒAL CONJUNCTIVITIS TREATED WITH ARGYROL.

BY

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At the present time when the substitutes of silver nitrate are being given such extensive trial in the treatment of gonorrhœal conjunctivitis it is advisable to report all cases of this kind for statistical purposes. Only by an analysis of a large number of reports can a proper value be placed upon the efficacy of a given remedy. For purposes of comparison the statistics of Mr. Holmes Spicer in Vol. xiii., p. 211 of the R. O. H. Reports, will be found of great value. Mr. Spicer's analysis of 215 cases, 81 per cent. of which had been treated by a 4 per cent. solution of silver nitrate, gave the following results:—

Complete recovery in	84
Cornea slightly damaged in	26
Cornea seriously damaged in	74
Eye Lost in	30
Returned with ulcer of cornea	1
Total	215

2. Journal of Medical Research, 1901.
3. Journal of Experimental Medicine, 1901.

It will be seen from these figures that the number of cases of gonorrhœal conjunctivitis which recovered with the nitrate of silver treatment is greater than is generally believed. While, therefore, it is undoubtedly advisable, especially on account of their painlessness and power of penetrating the tissues deeply, to make trial of the new substitutes, we shall do well to subject them to most careful analysis before discarding the old salt which has served ophthalmology so well in the past.

The following two cases, treated with argyrol, are of interest, also as regards the modes of infection:—

Case I: J. L., a Russian Jew, was seen on March 25th, 1903, by Dr. Buller, who placed a protective shield on the right eye and sent the patient to the hospital. On admission the following history was given: One week ago his left eye felt as if something were in it, and, as was his custom, he washed it with some of his urine. Unfortunately for him he had had a chronic gleet for some three or four months, and on the following Sunday, four days later, his left eyelids were a little swollen and the eye felt sore. On Monday the swelling had increased and a dirty watery discharge was coming from between the lids. Next day the eye was freely discharging pus.

Present condition: The patient is an illiterate Russian Jew, whose right eye is normal and protected by Dr. Buller's shield.

Left Eye: Lids hot, red and swollen, and not easy to separate or evert; pus of a thick, yellowish character wells up from between the lids. There is intense chemosis of the bulbar conjunctiva so that the periphery of the cornea is hardly seen but the centre of the cornea is as yet uninvolved. The pre-auricular gland is slightly swollen and there is slight fever. A number of smears from the eye show innumerable gonococci.

The patient was immediately put to bed with irrigations of hot boracic solution every half hour, cold compresses of bichloride solution, 1-10,000, in the intervals, vaseline smearings upon the lid margins and argyrol, 25 per cent., freely applied to the conjunctiva once daily.

The next day the eye looked somewhat better, but the day following there were seen some infiltration of the cornea at the lower corneo-sclerotic margin, and four days later the cornea perforated at this point. The small piece of iris which prolapsed was punctured with a Knapp's needle.

From this on, the eye continued to improve, and on May 21st the following note was taken: Left eye now quiet; no discharge; the ulcer which involved the lower quarter of the cornea has healed nicely, the

cornea above this clear and bright; T.=N., V.=fingers at four to six feet. After leaving the ward the patient was seen a number of times at the out-patient department and his eye remained as above.

Case II: A young married man came to the out-patient department on April 7th, 1903, with a purulent discharge from the left eye and gave the following history: Three nights previous the patient first noticed his left eye slightly irritable as if something were in it, though it was not at all red. The following morning the eye felt better, but there was some watery discharge coming from it. During the day the lids became quite swollen, though towards night he was able to open them freely and the vision of the eye was noted to be good. Bread poultice applied. Two days later he was unable to open the lids and there was free discharge of pus from the eye. The following afternoon (about 68 hours after the onset of the illness) he entered the hospital for treatment.

Present condition: Patient, a young French Canadian, 28 years of age, well-nourished, healthy-looking muscular man, complaining of inflammation in and discharge of pus from the left eye. He denies all history of gonorrhœa and examination of the urethra is entirely negative. He attributes his illness to the towels which were used in the barber's shop on the evening of the onset of his trouble.

Left Eye: Great swelling and redness of the lids; the palpabral conjunctiva reddened and swollen; the bulbar conjunctiva markedly chemotic; profuse purulent discharge welling up from between the lids; cornea intact. The pre-auricular gland a little enlarged and there is slight rise of temperature. Pus from the eye shows typical gonococci.

Diary and treatment: *April 7th,* was sent to the ward and Dr. Buller's shield put over the right eye; irrigations of boracic acid solution every half hour; applications of argyrol, 25 per cent., to the conjunctiva daily and vaseline warmed and dropped into the conjunctival sac.

April 8th, left eye about the same.

April 9th, still copious discharge of pus; lids not so thickened; tiny spot at inner border of cornea which looks like beginning corneal infiltration, spot well touched with argyrol, 25 per cent.

April 10th, discharge less, can open eyes.

April 15th, eye to-day shows very great improvement, only very slight discharge, which still contains gonococci, and lids open easily; chemosis less, no involvement of cornea.

April 25th, gonococci still present; eye has yet an angry look.

April 28th, gonococci not found; shield removed; conjunctiva quiet, no discharge, swelling and chemosis gone; V.=N. Discharged cured after 21 days.

Acknowledgment is due to Dr. Byers for kind assistance in the preparation of this report.

ON APPETITE JUICE AND THE ETHICS OF EATING.

BY

J. G. ADAMI, M.A., M.D.

Neat napery, food so served that its very look attracts, surroundings such that the mind is diverted for the nonce from the cares of the every day world,—cheer that, however simple, is before all things inviting,—this is the epitomized philosophy of Professor Pawlow,* of St. Petersburg, and by this philosophy would he teach us to exorcise the demon of dyspepsia. "Now, good digestion wait on appetite and health on both," he would say, had he known his Shakespeare, for what he insists upon is that good health depends upon good digestion and good digestion depends essentially upon appetite so that, for the preservation of health, appetite is to be cultivated. And upon appetite he has much to say.

His philosophy, let it be confessed, smacks of the epicurean. In these days of stress and strain, we are apt in the rush and turmoil of things, to make a virtue of necessity and taking no thought of what we eat or what we drink, impute this unto ourselves for righteousness. Far from emprelatising our entrails we are apt to glory in our neglect of creature needs. Whether we be strenuous or but merely neurotic, we are impatient that the flesh should and must obtrude; that it must obtrude is, we are inclined to hold, beneath our dignity as Men and Women. On the other hand, says Pawlow—we render his doctrine broadly:—"Take no thought for your food" is sound advice to those leading right and natural lives. The exercise of regular bodily labour and an out-of-doors existence, with an equable mind and a brain not overworked, conduce to hunger, and hunger is the best sauce. A genuinely hungry man can triumph over the matutinal hot roll and can accomplish the boarding house steak without serious after affects. An indoor existence, on the contrary, with little exercise and with food eaten as a matter of routine rather than in answer to the calls of hunger, and then with the mind occupied, not with the fare, but with the concerns of business, tends inevitably to dyspepsia. Under these conditions health can only be preserved if thought be taken of the food and if appetite be stimulated. And he proves this by a remarkable series of experiments.

* Pronounced, by-the-way, Pavloff, the *a* as in 'far.'

Twenty years ago Pawlow was already embarked upon his studies on digestion. It is, I am almost shocked to think, verging upon that number of years since it was my good fortune to be a fellow worker with him at Breslau under the late Professor Heidenhain, in his time the foremost investigator upon secretion and the work of the digestive organs. Heidenhain was a master-mind and upon him Pawlow has built. Even then he was a marked man, serious, earnest, and quietly enthusiastic. Oddly, my most vivid memory of him is dietetic, for in their kindness towards the new comer in the laboratory, he and Madame Pawlow invited me to their celebration of old New Year's Eve, introducing me then to the Samovar and to Russian tea taken flavoured with rum and a slice of lemon,—a most delectable beverage on a winter's night, and the Silesian winter resembles the Canadian. But a few years later he was appointed Professor of Physiology in the Imperial Military Academy at St. Petersburg, and later was given, in addition, the directorship of the physiological department of the Institute for Experimental Medicine, an institute founded, magnificently appointed and endowed by Prince Alexander of Oldenburg, and there he possesses what is in every respect a model research laboratory. Steadily and without remission Pawlow has continued his studies upon the digestive system and, as the work has developed, he has attracted to himself a band of capable assistants—Chigin, Hanicke, Katschowski, Kuwschinski, Kudreweski, Lobassow, Mdme. Shumow-Simanowski, Rjasanzew, Sokolow, Ssamoilow, Damaskin, Schepowalnikow, Wolkowitsch, Walther, Soborow, and a dozen others—who, under his direction, have undertaken an ordered succession of studies upon the different portions of the alimentary tract and its associated glandular organisms. The power that he has manifested to keep to one subject over this long period of time and of directing those under him in such a way that, without haste and without waste, the whole ground is gradually being covered, is remarkable. Remembering the similar year-long series of studies upon phagocytosis by Metchnikoff and his pupils, one wonders whether here we encounter a national Russian characteristic.

While through these investigations Pawlow's fame as a physiologist has as steadily increased, it has to be admitted that the medical world is only now beginning to recognize as it ought the great value of his work. In part, no doubt, this is due to the language in which many of the most important papers have been published; the Russian language is, for very many reasons, outside the pale. In part, however, it must be acknowledged, as physiology is becoming more and more specialised, that, as a body,—of course there are exceptions—physiologists nowadays pursue their science for science sake, without regard to its bearing as a

branch of medical study, and as a result not one practitioner in a thousand subscribes to, or keeps himself posted regarding the contents of, the physiological journals. The greater number of the articles contained in those journals have little or no direct bearing upon the problems which immediately interest the ordinary medical man.

But Pawlow has throughout recognized the importance of his researches from a medical standpoint and, in 1897, he gave in St. Petersburg a series of lectures to medical men in which he brought together in a simple and entertaining form the outcome of the investigations made by him and his pupils. In 1902 he gave other lectures bringing the account of his work up to date. Translated into French and German, these lectures have had an immediate success. Now it is possible to read them in our own language, retranslated from the German by Professor Thompson, of Dublin.*

It is only a small book of less than 200 pages, but of these not a single one is uninteresting. So important is the work, so full of fact and thought and suggestion, that it should be in the hands, not only of every specialist upon digestive disorders, but of every physician. There has been nothing so valuable, nothing so fundamental upon the subject since Beaumont published his studies upon Alexis St. Martin. Upon these researches must be based the dietetics of the future.

Simply as a study in the experimental surgery of the digestive tract, the work is of importance. As a primary requisite for exact enquiry into the work of the different organs, it was essential to elaborate a technique whereby each gland or collection of glands could be isolated and its secretion obtained in a pure state over long periods of time and under varying conditions of experiment. It is unnecessary here to tell of the means whereby Pawlow and his co-workers successfully accomplished this in case after case; as an indication of the triumph over operative difficulties it may be stated that dogs have been kept for months in good health with the pancreatic duct opening upon the abdominal wall, that it has been found possible to keep dogs in relative health for many weeks when one vagus nerve after the other has been cut in the lower cervical region (thus cutting off the vagus innervation of the abdominal viscera), and that accessory stomachs have been moulded from the main organ, separated wholly from this as regards their contents while remaining still in vascular and nervous connection with the same. Such miniature stomachs secrete their juice *pari passu* with the main organ, so that samples of gastric juice secreted under different condi-

* The Work of the Digestive Glands. Lectures by Professor J. P. Pawlow, translated into English by W. H. Thompson, M.D., King's Professor of the Institutes of Medicine, Trinity College, Dublin. London : Charles Griffin & Co., Limited. Philadelphia : J. B. Lippincott Company. 1902.

tions are to be obtained and analysed free from admixture with the food undergoing digestion in the latter.

With this perfected technique singularly accurate and constant results have been obtained. I shall not attempt to epitomize by any means all of them. Returning to my main thesis, I would take up the one subject of "appetite juice."

That there is a salivary appetite juice, is a well known and universal experience, the mouth watering in anticipation of food. That there is similar gastric and even pancreatic juice has not previously been accepted. If seen by experimenters, as for instance by those well known old observers, Bidder and Schmidt, it was noted to be inconstant; the laws governing the flow were neither suspected nor determined.

Employing œsophagotomised dogs, with gastric fistulæ and accessory stomachs, Pawlow has been able to show that several factors are at work determining the extent to which gastric juice is poured out in the act of digestion.

Take an œsophagotomised dog and mechanically irritate the mucous membrane of the mouth and throat, or feed it with smooth stones, the stones dropping out of the upper end of the œsophagus so soon as they are swallowed, and under these conditions, the stomach remains dry, not a drop of juice is excreted. Obviously the mere mechanical act of eating or of irritation of the throat does not reflexly induce an outflow of the gastric juice.

Make a gastric fistula in this dog and let it be hungry, with an empty stomach: not a drop of juice is present in the viscus; the mucosa is dry. This, it may be noted, was Beaumont's experience in the case of his French-Canadian voyageur. Nor does mechanical irritation, as with a feather, or even distension of the organ by means of a collapsible rubber ball lead to any secretion. The mere presence of matter filling the organ does not in itself excite the outflow of the gastric juice.

Take the same dog in a fairly hungry condition and begin to prepare and chop up meat before it in such a way that it does not imagine that it is being hoaxed, but anticipates the meal, then, in *five minutes'* time, there starts a rapid and relatively abundant flow of gastric juice.

Or give the œsophagotomised dog raw meat to eat; it gulps it down voraciously and, although never a particle reaches the stomach, five minutes again from the beginning of the meal there is a copious secretion of gastric juice, and this continues so long as the process of feeding is kept up.

In place of raw, give boiled meat; and the flow is not so extensive. If the animal has been fed only a few hours previously the flow may be

slight. In short the amount of flow differs with different animals according to their state of hunger, according to the nature of the food, and according to personal idiosyncrasy. Some dogs have a stronger flow of juice, rich in pepsin, with raw meat than they have with bread, the meat is the more attractive. Others prefer bread to meat and, with it, have the more active secretion; some are phlegmatic and under all conditions give little of this appetite juice; others are sanguine and have generally an active flow.

Now, as a further exercise, take a dog having a gastric fistula and while it is asleep or while being awake, its attention is diverted, cautiously introduce into the stomach some pounded up raw flesh. Five, ten, fifteen, twenty minutes elapse and there is absolutely not a drop of juice discharged. It may be even an hour before there is any sign of secretion. More usually it begins in from twenty to thirty minutes. And here a long series of observations upon different food stuffs in animals with miniature stomachs and gastric fistulæ has proved that the different food stuffs act very differently as *direct* excitants of the gastric secretion. The results, in fact, are largely unexpected. Simple proteids like white of egg or like meat that has been boiled for days to remove all extractive matters, are wholly inert. They may lie in the stomach for hours (when directly introduced) without there being any outflow. Starches are likewise inert. Sodium bicarbonate and common salt are found, contrary to all previous teaching, when given with other substances, to lessen the outflow. Fats also have an inhibitory effect, but water in fair quantities directly incites a flow and so do meat broths and various extracts of meat.

We have, that is, to deal with two tides of secretion of the gastric juice; the psychic tide, set up by the sight of food, by the taste of the same, and by hunger, and the juice of this tide—the appetite juice—is relatively abundant, flows for a considerable period, and has strong digestive powers. And secondly, the chemical tide, set up at a later period by the direct effect of the food stuffs upon the gastric mucous membrane. The former is brought into activity by the higher centres. Cut through the vagus nerves and it is wholly stopped. The latter has also, according to Pawlow, a nervous origin being brought about by the simple reflex from irritation or chemical stimulation of the gastric mucosa. Taking everything into consideration, the former tide, of "appetite juice," is by far the more important. I may here quote one of Pawlow's own experiments amply proving this statement.

"I carried out the following procedures upon two dogs both of which had ordinary gastric fistulæ and were besides œsophagotomised. Into the stomach of the one, while its attention was distracted by patting

and speaking kindly to it in order to avoid arousing any thoughts of feeding, a definite number of pieces of flesh were introduced through the fistula. The morsels were threaded on a string, the free end of which was fastened to the fistular cannula by inserting a cork. The dog was then brought into a separate room and left to itself. A like number of pieces was introduced into the stomach of the other dog in the same way, but during the process, a vigorous sham feeding was kept up, the animal being afterwards left alone. Each dog received 100 grms. of flesh. Since then an hour and a half have elapsed, and now we may draw the pieces of flesh out by means of the thread and weigh them. The loss of weight, and consequently the amount of flesh digested, is very different in the two cases. In that of the dog without sham feeding, the loss of weight amounts to merely 6 grms., while the flesh withdrawn from the stomach of the other dog weighs only 70 grms., that is to say, has been reduced by 30 grms. This, therefore, represents the digestive value of the passage of food through the mouth, the value of an eager desire for food; the value of an appetite."

"A good appetite in eating is equivalent from the outset to a vigorous secretion of the strongest juice; where there is no appetite this juice is also absent. To restore appetite to a man means to secure him a large stock of gastric juice wherewith to begin the digestion of the meal."

The morals are many which we may draw from this striking series of experiments. First and foremost, we have to learn that, in dieting either the well or the ill, the absolute quantity of the food stuffs we give and the number of calories these quantities represent, is far from being everything. A simple food stuff like white of egg, if given alone, will take a long time for its digestion, whereas a simple broth or extract of meat, whose direct value as a food is absolutely nil, may be of distinct value in directly stimulating the flow of the gastric juice and thus aiding the digestion of food stuffs which follow. Plain undiluted water has a like affect. Food eaten without relish and without appetite, although in itself most nutritious, may lie for hours within the stomach undigested. So again, food eaten while the mind is diverted to other things, may stay for long unacted upon, nay more, under such conditions, is liable to undergo decomposition and, irritating the mucous membrane, may lower its condition. Here, in short, appears to be the basis of the dyspepsia so common here as to be *the* American disease. I do not mean to say that bad cooking, iced drinks and creams, hot rolls, and so on, do not play their part, but even granting all these things, if we are to accept the abundant experiments of Pawlow and his

co-workers, the conditions under which the food is eaten are the main causes of the disorder. "The old and empirical requirement that food should be eaten with interest and enjoyment is the most imperatively emphasized and strengthened of all." And if dyspepsia is to be warded off, the food should be taken under such conditions that everything is directed on the one hand to remove the thoughts from the cares of daily life and, on the other hand, to make the repast appetising so that the palate may be tickled and the flow of appetite juice excited. No matter how good the food, if presented, as is too often the case in our hotels, our public institutions, our hospitals and even in our homes, in an unattractive form, then, the appetite is not awakened, the appetite juice flows but poorly, and the digestive process is delayed to the detriment of the organism and of the individual, and of his mental and moral tone.

There is thus a philosophical basis for the customs of the table and for the decent carrying forward of the meal. Even, as Pawlow indicates, a good word has to be said for the preliminary cocktail, or glass of sherry and bitters. For, where food has to be taken and the individual is not absolutely anhungered, the bitters act as stimulating the appetite, that is, as preparing the organism to be attracted by food. Wholly apart from the question of the food value of alcohol, he is apt to consider that, at times, a little wine with the meal is a benefit in that it produces a mild narcosis of the highest centres and so distracts the mind from its cares while not acting upon the higher centres of the second order which determine appetite. The *hors d'œuvre*, it is to be noted, formed of highly seasoned fish or fish paste or the like, and rich in extractives, both stimulates the appetite and has a direct affect upon the gastric mucosa. Soup again, having a basis of stock or meat broth, comes well at the beginning of the meal in that the extractives it contains and the water directly stimulate the flow of the gastric juice and so prepare the stomach for the more solid foods that follow. While "the repast begun with pleasure consequent upon the pressing need for food, must also, notwithstanding the stilling of hunger, be terminated with an agreeable sensation. At the same time the digestive canal must not be burdened with work at this stage. It is only the gustatory nerves which should be agreeably excited; hence the logic of ending with something sweet."

It must ever be kept in mind that "what is meat for one is poison for another," that the same diet, found nutritious for one, is eminently unlikely to be serviceable for every individual, but that, on the contrary, in dieting, the personal equation must be carefully studied and those dishes be given which the patient enjoys, even if the food value, as

reckoned outside the body, of some of the ingredients, be far from approaching that of the constituents of other foods for which the patient has no appetite. And, remembering what has already been said concerning the pouring out of appetite juice, it is clear that if we wish to feed up a patient with a weak digestion, it is better not to give large meals but smaller meals at shorter intervals, for, with each meal, the flow of appetite juice is called into activity.

But for other points here touched upon and their explanation, reference has to be made to Pawlow's own work. There is one matter which I do not see touched upon by Professor Pawlow, namely, how far we are justified in drawing deductions from these experiments upon the dog regarding what occurs in man. If, as Pawlow puts it, this flow of appetite juice is brought about primarily by the intervention of higher functions such as judgment, will, desire, and if, by the establishment of this passionate desire for eating, unerring and untiring nature has linked the seeking and finding of food with the commencement of the work of digestion, then it has to be realized that the desire for special forms of food in a carnivorous animal must differ from the desire and choice of an omnivorous animal. So that, while flesh, more particularly, excites the dog, it may be that bread and other starchy foods and even sweet stuffs have in man an even stronger stimulating affect. To this extent we must be prepared to find differences in details in the working of the human as compared with the canine stomach.

Can we go any further? I think it will have to be admitted that we can, and that there are other differences between the flow in man and in the dog. I have just, as a matter of interest, been reading that which was the first great American contribution to medical science, William Beaumont's "Experiments and Observations on the Gastric Juice and the Physiology of Digestion," of which the first edition, which, along with the second, we are fortunate in having in our library at McGill, was printed in "Plattsburgh" in 1833. You all know the main points of the story of the French Canadian, Alexis St. Martin, how in his youth he was accidentally shot through the body, leaving a permanent gastric fistula which, nevertheless, caused him so little eventual serious disturbance that he lived to be eighty-one, and you know how, on and off for very many years, Beaumont, the army surgeon, made observations upon him. If you wish to refresh your memories as to the details of this most interesting history, I need but refer you to Dr. Osler's paper in the Journal of the American Medical Association of November the 15th, 1902.

Reading the original, one is immediately struck with a very marked difference between Pawlow's results upon the dog and Beaumont's upon

St. Martin. You will remember that the former found that mere mechanical stimulation of the gastric mucosa did not, in itself, call forth any flow of the gastric juice. Beaumont, on the contrary, employed this method of mechanical stimulation as a routine practice in order to obtain the pure juice. His method of gaining such juice, indeed, was simply the introduction of a gum elastic tube of the size of a large quill through the fistula into the stomach. "In health," he says, "and when free from food the stomach is usually entirely empty and contracted upon itself. On introducing a tube, the fluid soon begins to flow, first in drops then in an interrupted, and sometimes in a short continuous stream. Moving the tube up and down, or backwards and forwards, increases the discharge." Now this conclusion was not reached as the result of an occasional observation. There are, I have counted, some three score observations detailed in which studies were made with juice so gained from the fasting stomach. Nor was it a mere watery mucoid discharge that was gained by this means; it was a typical gastric juice, capable of acting upon various meats, milk, white of egg, and a host of other substances; it was strong enough to act upon bone; it was analyzed and hydrochloric acid was found present. It is true that ten, fifteen, or more minutes were necessary to collect even one and a half ounces of juice by this mode of irritation of the healthy, fasting stomach, so that the flow so induced was not found very active, true also that, occasionally no fluid was obtained by this means. But Beaumont suggests, what is at least a reasonable explanation, namely, that the irritation so induced is localised and not general, so the amount of secretion was not great. As Beaumont calls to mind, Spallanzani and others had, before him, excited the discharge of the gastric juice by the introduction of such inert substances as sponge, tubes, pebbles, etc., into the stomach *per os*. I do not see, therefore, how we can possibly accept Pawlow's generalization that the human stomach is not stimulated to secrete juice by mechanical irritation. There is a difference between man and his more highly organized nervous system and the dog. The human stomach is the more sensitive. Admitting this, we obtain an explanation of an apparent paradox which Pawlow points out and attempts imperfectly to explain. He gives an instance from his own personal experience in which, after an illness accompanied by a transient high fever, he had lost all desire for food and had a complete indifference towards eating. Fearing collapse, on the second or the third day, he endeavoured to create an appetite by swallowing a mouthful of wine. He felt is quite distinctly pass along the œsophagus and into the stomach and literally, at that moment, perceived the onset of a strong

appetite. He admits, therefore, that the tactile sensation of the stomach is, in man, sufficiently developed to be, at times, recognized by the psychical centres and, if he admits this, then it appears to me that he must go one step further and admit that, in the human being, such sensation is capable of starting the reflex which leads to a secretion of the juice. So far as they go, the facts here recorded seem to establish the distinction between man and the dog. One possibility remains, namely, that St. Martin knew what was expected of him and that the flow was stimulated from the higher centres and was not a simple mechanical reflex. Beaumont never tried the effect of introducing substances when the attention was diverted, and his observations show that in the middle of the experiments when his subject had became accustomed to the procedure, the flow was often very small, only a drachm or two and that, rarely, it was completely wanting. Granting this, I cannot but think that the evidence is in favour of the human stomach recognizing the existence of a mechanical load and secreting accordingly. If this be so, I do not see that we can hope ever to obtain in man so perfect a demonstration of the different tides of the gastric juice as Pawlow obtained in the dog. But, with this exception, it seems that we must regard Pawlow's observations as very largely applicable. Beaumont, it is true, only made what we may term rudimentary observations. He did not—he could not—estimate the power of the gastric juice under different conditions. He did not make sufficiently accurate observations upon the digestion of individual constituents of the diet; if he gave eggs, it was the whole egg together with salt and generally with bread. He experimented upon an enormous number of foods, even down to soused pig's feet and apple dumplings. He gave these with coffee, bread and vegetables. But, like the later observers, he found, under ordinary conditions, that within fifteen minutes the juice was already being actively discharged, and the discharge was largely proportional to the food taken, and that emotions and "whatever depresses or disturbs the nervous system" arrest the flow. I do not see that we can fail to be convinced that the broad principles of the two orders of excitation, psychic and chemical, must be the same in all warm blooded animals. What rests with us is, to observe carefully the effects of accepting Pawlow's principles in our dieting of the individual. Thus far it may be laid down as a matter of experience that the most well-fed persons are those who feed best.

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A REASONABLE SETTLEMENT.

In an editorial in the October number of this JOURNAL on the proposed amendments to the statutes, by-laws and regulations of the College of Physicians and Surgeons of the Province of Quebec, we made what might be called—in view of the attitude of the College at the July meeting—a reasonable forecast of the probable decision which it would take at the meeting of September 30th in regard to the vexed question of the "cours classique complet." We said that "there seems to be no doubt that the clause as amended (Chap. VI., clause 1) will be passed at the September meeting of the board." This would have meant nothing less than the enforcement of the "cours classique complet," as a preliminary to the entrance examination, on all candidates—Protestant and Catholic alike—and we protested once more against what would be an undoubted injustice to one section of the community. Quite unexpectedly the board accepted an amendment excluding Protestant candidates from the operation of the by-law, which was objectionable to them.

We make haste to add that this was done in a spirit of perfect fairness and courtesy, which was duly appreciated and acknowledged at the time by the Protestant members of the board. There had evidently been a misunderstanding on both sides, and the satisfactory settlement of the question removes the only grave source of friction between the majority and the minority of the board. Both French and English have to live together, and all signs point to an increasing toleration of the views held by each where they can not be completely reconciled. We shall not be mistaken if we add that the time is at hand when all the elements of the board will operate as a unit for the welfare of medical education and practise. This latest concession, so gracefully made, has materially advanced the interests of all parties.

THE MEDICO-CHIRURGICAL SOCIETY.

The president of the Medico-Chirurgical Society introduced an innovation into the proceedings of the opening meeting, by transacting the business quickly, and delivering a short address in which the history of the session that is now past was nicely touched with comment and observation. The austerity of the rooms was relieved by small tables covered with white cloths, and the series of events which followed led to a display of extreme cordiality of feeling such as has not been achieved by ten years of case reports, papers and pathological demonstrations. The business of the society is not, of course, purely social, but the scientific side will not suffer by the demonstrations of tenderness, which the members displayed towards each other, on the opening night.

The president, amongst his many "announcements," brought forth matter, which is full of promise for making the meetings more tolerable to tired men. All the business will be dealt with by the Council, and, when well considered, will be brought before the members for approval, a practice which will save much time, by avoiding loose speech and discouraging hasty utterance. The living cases will be assembled in two rooms, at half-past eight, with succinct histories of their conditions attached to their places, and the pathological specimens may be seen at another convenient spot. The formal business of the meeting will begin half an hour later, and by a quarter past ten all will be over. The president made an appeal for a widening of the discussions, especially by the younger members, and that can be done without much consumption of time, for the younger members are not the worst offenders in that respect.

At the meeting referred to, one was struck with the preponderance of young men, and the absence of many who occupy official positions

in the profession. There is a vigour of life and an activity of movement in this Society, and all those who occupy or aspire to occupy official positions in the profession should keep themselves informed of its trend. Another noteworthy feature of the meeting was the presence of a number of members of the French portion of the community. This is one of many gratifying signs that French and English are coming together. The Medico-Chirurgical Society can do much toward that end.

MEDICAL FEES.

It is within the knowledge of the public, that there are some physicians and more surgeons who do occasionally charge for their services more than seems to be necessary; it is within the knowledge of the profession, that there are some amongst the public who do not pay their bills, however reasonable the charge may be. The result is at times an appeal to the courts. A judge finds no difficulty in adjusting a lawyer's account, for he has been a lawyer himself; he often confesses himself at a loss in adjudicating upon the nature of a physician's services. Medical men themselves are sometimes in doubt lest they may have charged a patient more than he can conveniently pay, and they have many a bitter moment, when they hear in an indirect way that a patient has been overcome with astonishment at the smallness of the fee.

A tariff of medical fees must always be a movable one, there are so many factors entering into the case which alter the monetary value of the services, such as the financial capacity of the patient, the necessities of the physician himself, the responsibilities he incurred, the skill required, the gravity of the condition with whch he has to deal, and in some degree the success that has attended his ministrations. Another important element is the time that has elapsed between the rendering of the service and the rendering of the account. Eaten bread is soon forgotten.

The remedy for this unsatisfactory state of affairs is to be found in a judicial committee, which might be drawn from amongst the wisest members of the profession by the Medico-Chirurgical Society. It would be purely advisory in its functions, it would have no power of initiative, it would merely take cognizance of, and pass upon any account which might voluntarily be submitted to it by a medical man, who had any doubt about the accuracy of his account—doubt, it may be added, which might have been instilled into his mind by the recipient of his services. This committee would, of course, have no legal standing, but in time, it might come to be recognized as a medical court of arbitration, to

which the laity might come in all confidence that they would receive equitable treatment. In the unlikely event of legal proceedings, if a judge were convinced that an account had been passed upon by such a committee, it is extremely probable that he would adopt their view of the case. Litigation would be discouraged, and therefore justice would have a freer play.

In order to make the work of the present session especially interesting, the Council has issued a circular letter, pointing out how desirable it is that each member should hold himself responsible for some part of the programme, and asking him to consider the matter and reply to the Chairman of the Programme Committee, indicating the form his contributions would take, and the approximate dates of submitting them.

CHARITY AND THE HOSPITALS.

There was a time, long ago, when hospitals were institutions purely for the distribution of charity, though it is hard now to see what charity there was in exposing patients to the infection of erysipelas, hospital fever, gangrene, puerperal sepsis and the brutality of ignorant attendants. The poorer classes after a long crusade convinced the world that what they demanded was not charity but justice, not free coals, blankets and drugs from some Lady Bountiful, but a living wage, which would permit them to procure these necessary things for themselves.

This charity used to be bestowed chiefly with an eye to the benefits which were supposed to accrue to the giver; at present, this ethical motive is never referred to. If the canvasser for a hospital were to put forward this incentive to charity, the average man of business would look into his face for some signs of mental derangement. The people who call themselves the working classes—as if none worked but themselves—have received the justice they vainly sought for centuries. They cannot have justice and charity too; rather, they have received justice, and do not require charity.

A bricklayer receives 40 cents an hour; a stonemason, 35 cents; a carpenter 22½ cents; a plumber, 30 cents. These are not the poorer classes, and even the labourers, who alone have any claim to that distinction, have elected to remain idle rather than work for less than two dollars a day. The average medical man makes less than that during his first years of practice, and not many, at any time, arrive at the emoluments of a bricklayer. If the plumbers and carpenters and painters were to establish an institution, centrally located and perfectly equipped, where anyone, who chose to apply, would have the services of the most competent workmen free of charge, then there would be some justice in the present arrangement.

The medical profession is as eager as ever to bestow charity, but there is a growing irritation against the preposterous demand that it shall be given to all who apply, and those demands will not be endured forever, either by hospital physicians, or those outside the hospitals, whose actual living is put in jeopardy. The public, which supports the hospitals, will not endure it either. There is a remedy at hand, and that is to be found in the Charity Organization. This Society has already driven worthless beggars from our doors, and compelled them to elect between honest work, starvation and crime. It has reduced the professional applicants for needless relief at one institution by two-thirds, and it can purge the hospitals in the same way. In the General Hospital last year there were given 37,372 free consultations in the outdoor department, and 63,018 hospital days of free treatment; in the Royal Victoria Hospital the free consultations were 21,950, and the days of free treatment 70,609. If anyone says that any considerable part of this enormous extent of charity is in reality charity, then we take the liberty of replying that we do not believe it; if it be claimed that there is no remedy for this state of affairs, we say again that such a claim is unfounded. The proper source from which such remedy shall proceed is the Medico-Chirurgical Society, and we shall be much surprised if it does not take the matter in hand.

THE ALEXANDRA HOSPITAL.

Objection has been made in several quarters, that the committee which has in charge the matter of the new hospital for contagious diseases for the English speaking portion of the community in Montreal, has in the specifications for the plans asked for too small a number of private wards; that the hospital is to serve all classes of the community, that therefore all classes should be duly considered, and that a due provision of private wards is necessary, if the needs of the whole community are to be ministered to. We cannot but acknowledge the force of the argument; yet those who object have left out of account, that owing to the contract with the City the number of free beds cannot be lessened. The committee are fully alive to the fact that there should be accommodation of the very best kind for those who are willing to pay, and that anything short of the best will help to defeat one of the main purposes of the plan, but they have also before their eyes the necessity of doing the best they can with the means at their disposal. That part of the public which is likely to require private accommodation has the remedy in its own hands, and that is to come to the help of the committee in providing against the future. The members of the profession can be of great assistance in warning their patients to provide a refuge for their children against the time of need.

The plans for the new hospital are now sufficiently advanced to allow of suggestions from the medical profession being of some value, and they will in due time be submitted for consideration and advice.

An interesting case is under adjudication in the Superior Court of Quebec. The plaintiff is Isidore Crepeau, who claims $395 damages from Dr. R. de L. Harwood and Dr. Magloire Ouimet, druggist, on the ground that a prescription ordered by Dr. Harwood, and prepared by Dr. Ouimet seriously impaired the health of his wife. It appears that the prescription was telephoned, and, that if any mistake occurred, it arose by a misunderstanding of the message. The suit in itself discloses another pitfall in the way of medical men.

Montreal is large enough to require some co-ordination in its public medical and surgical work. Residents as well as visitors would like to be informed of the time of clinics and operations. Men newly graduated would appreciate the opportunity for enlarging their experience, and even some of the older members could profitably renew their hospital life. It would not be necessary to advertise the operations in the newspapers, after the manner of some places. The interchange of cards between the hospitals, the posting of a notice in the colleges and in the rooms of the Medico-Chirurgical Society would be sufficient. The details of such a little innovation could be arranged by the various medical boards without much discussion and with no fear of misunderstanding.

Dr. Leo Loeb, who, for the last year, has been Fellow in Pathology at McGill, has been appointed assistant in the department of Pathology at the University of Pennsylvania.

During his stay in Montreal, Dr. Loeb has been a singularly active worker. Apart from the papers published and bearing upon researches carried on elsewhere, he has completed the following: "On the Coagulation of Blood in its Relationship to Thrombosis and the Formation of Fibrinous Exudate," this JOURNAL, July, 1903. "On the Presence of Specific Coagulines in the Tissues of Vertebrates and Invertebrates," *The Medical News,* New York, N.Y., Aug. 1st, 1903. "Versuche ueber einige Bedingungen des Blutgerinnung, insbesondere ueber die Specificitaet der in den Geweben vorhandene Coaguline," *Virchow's Archiv,* 1903 (in the press). "On the Influence of Certain Bacteria on the Coagulation of the Blood." *Journal of Medical Research.* (In the press).

The following papers deal with work begun elsewhere and continued and finished at McGill:—

"On the Transplantation of Tumours," *American Medicine,* Vol. V.,

March 14th, 1903. "Ueber Transplantation von Tumoren," *Virchow's Archiv,* Vol. 172, 1903. "On the Coagulation of the Blood of some Arthropods and on the Influence of Pressure and Traction on the Protoplasm of the Blood Cells of Anthropods," *Biological Bulletin,* Vol. IV., 1903. "Ueber die Bedeutung der Blutkoerperchen für die Blutgerinnung u. d Entzuendung einiger Arthropoden u. ueber auf d. Protoplasma dieser Zellen, *Virchow's Archiv,* Vol. 173, 1903. "On Regeneration in the Pigmented skin of the Frog and on the Character of the Chromatophores (with R. M. Strong), *Journal of Medical Research* (in the press). "On a Hypertrophic form of Atresia of Follicles and on the formation of Syncytium in the Ovary of the Guineapig, with Notes on the Oocytes of the medullary canals, on progressive changes in the Ova and on the origin of Lutein cysts. Other work begun in Montreal is not yet completed.

Reviews and Notices of Books.

Observations on the Placenta of the Rabbit with Special Reference to the Presence of Glycogen, Fat and Iron. By Walter Chipman, B.A., M.D., Edin., F.R.S.C., Edin., Assistant Gynæcologist, Royal Victoria Hospital, Montreal; Lecturer in Gynæcology, McGill University. Studies from the Royal Victoria Hospital, Montreal, Vol. 1. No. 4. 1903.

In this part of the studies from the Royal Victoria Hospital are contained the results of some years of work in the laboratory of the Royal College of Physicians of Edinburgh, of work which gained for Dr. Chipman the Freeland Barbour Research Fellowship of that University and subsequently the gold medal of the same when the results were embodied in a thesis for the degree of M.D. It is in many respects unfortunate that the university authorities in Edinburgh have no fund for the publication of select graduation theses. As a result many a valuable piece of work is stowed away in manuscript in the university library never to see the light. A similar fate threatened this work of Dr. Chipman's. It is violating no confidence to state that an offer was made to publish it in the Transactions of a very distinguished Royal Society with the understanding that, at most thirty illustrations were to be given. But as, to confirm each successive step in the observations, the author regarded the photographic reproductions of his long series of sections of the developing embryo and placenta as absolutely essential, this offer could not be considered. Nor did there seem any other scientific body which would undertake the publication of so costly a work, while the specialised nature of the

work made it hopeless to think of independent publication. At this juncture, to quote the introductory note; "considering that the value of the investigation lies largely in the admirable series of microphotographs, illustrating the successive stages in the development of the placenta, and that the cost of reproduction was too considerable for Dr. Chipman, single handed, to undertake, at the recommendation of the Editorial Committee; the Governors of the hospital have not only agreed to apportion to this publication a share of the 'Study Fund,' but have also individually contributed to defray its very considerable cost on the grounds that, under the circumstances of the case, the words 'Works by members of the Staff of the Hospital,' may well be permitted to include work by those members undertaken in laboratories elsewhere."

It is to these circumstances that this handsome monograph of 261 pages illustrated by no less than 186 illustrations, the majority of them microphotographs, but some of them reproductions in colour, owes its existence, and the photographs are so admirably reproduced that there is no difficulty in following and confirming each successive step in the author's results. Of this large number of illustrations only some half dozen or so strike us as being inadequate.

Dr. Chipman, it would appear, began his work as a micro-chemical research upon the presence and fate of glycogen, fat and iron in the placenta. As a preliminary to this study, an intimate knowledge of the structure and development of the placenta was essential. It was soon realized, however, that the life history of the rabbit's placenta was, in many places, incomplete and that some of its most critical incidents were subject to diverse interpretations and disputes. As a result it was seen that accurate study of the development of the placenta had to be made in the first place, and as a matter of fact, while Dr. Chipman devotes some considerable attention to these subjects, glycogen, fat and iron, which are concerned more or less directly in all nutrition, it will, we think, be admitted that quite the most important portion of the work is his detailed study of the progressive steps in the development of the placenta of the rabbit, for his results seem to throw most valuable light upon the structure and development of the human placenta.

Briefly, studying first the virgin uterus, Dr. Chipman obtained a remarkably complete series of rabbits at each successive day of gestation from the fourth (the first recognizable) up to the twelfth, after that every other day up to the thirtieth, when intrauterine existence is complete and birth occurs. It is unnecessary to state how each gestation sac was hardened and prepared. A feature of the work is

the photographs of transverse sections of the uterine cornu on successive days, all upon the same scale.

The battle is still raging as to what extent of the placental tissue is of maternal, what of placental origin. Beginning at the fifth day, the first sign of the future placenta presents itself in the form of a great hypertrophy of two folds or cotyledons of the uterine mucosa. The connective tissue elements of the sub-mucosa multiply and there is great increase in the size and number of the capillaries. The endothelial covering of those cotyledons grows at the same time and at first remains intact. The stimulus to the growth of these folds is the presence in their immediate neighbourhood of the fertilized ovum. In this on the seventh day, the embryonal area is outlined and is directed towards the two cotyledons. Only upon the eighth day* did Dr. Chipman find the embryo gain direct attachment to these. Then the embryo was found placed with its back more or less apposed to the groove between the two folds. On either side of the embryo the ectoderm was thickened, forming the area of placental attachment which becomes apposed to the surface of the corresponding cotyledon. The attachment is by plane surfaces. The area of placental attachment quickly extends, but while the ectodermal cells of the embryo multiply rapidly, the underlying maternal endothelium is corroded and thinned. From this period onwards, while formerly the line of fusion of the two tissues, maternal and fœtal, was, speaking broadly, in one plane, the fœtal tissues encroach more and more upon the maternal, by means of ectodermal processes which first appear opposite to the uterine gland mouths, plugged by their own overgrowth of epithelium. In the perivascular sheaths about the maternal blood channels there now (9th day) appear great numbers of uninucleated, so-called decidual cells and the channels tend to become greatly enlarged. By the ninth day the epithelium covering the cotyledons, that is the maternal placental folds, is destroyed and the embryonic cells are in contact with the underlying corium. The fœtal ingrowths into the maternal glands have plunged deeper, and the second group of such fœtal processes penetrate into the corium, always in the neighbourhood of some superficial capillary. And now, in its turn, just as the surface epithelium (maternal) had disappeared, before the advance of the fœtal processes, so now the tissue of the corium is absorbed and destroyed by the like means. As regards the maternal vessels, there now ensues a most remarkable process. It has already been stated, that

* We note here upon pages 123 and 124 what appear to be contradictory statements, to which we would call the author's attention. The statement is made that, on the *ninth* day, the attachment of the embryo is effected, but on the next page we are told that at eight and a half days the area of attachment is further extended. In our main text we make the obvious correction.

the maternal blood channels become more and more dilated and thin walled, and now, upon the tenth day, it can be seen that the columns of fœtal cells penetrate along the course of the maternal vessels. The ectodermal cells surround the distal end of a vessel; multiply, advance along the wall, and gradually replace the maternal lining endothelium of the vessels. The fœtal tissue swallows, as it were, the maternal and not only that, but swallows irregular hæmorrhagic cavities in what we may term the neutral zone of the placenta, due to occasional rupture of the maternal capillaries. And so it comes to pass that the advancing ectoderm replaces the maternal endothelium of the maternal vessels, or, in other words, at this period we see that what we may term the active portion of the placenta, is formed by fœtal tissue projecting itself into the maternal tissue and lying in direct contact with the maternal blood. Dr. Chipman's figures make this remarkable process absolutely clear and appear to us to settle, once and for all, the question as to the nature of the main bulk of the placenta. What had been maternal becomes, save for its blood supply, almost wholly fœtal.

This settled, the subsequent steps become easily comprehended. From having solid processes of fœtal cells, or, as Chipman has termed it, test-tube-shaped processes, containing maternal blood, we pass on next to what we may term the organization of the fœtal processes. Under and behind the fœtal ectoderm is projected outwards the fœtal mesoderm with capillaries filled with nucleated fœtal blood, and thus, if we may so express it, the ectoderm lining the maternal blood sinuses, acts as a layer of glandular cells absorbing nutrition from the maternal blood and presumably also capable of excretion of material into that blood, and this glandular tissue passes on the products that it receives from the mother into the vessels of the fœtus, while the vessels of the fœtus give up to these same cells substances which are to be discharged, and in this way, the placenta acts as a go-between for mother and fœtus. As Dr. Chipman remarks, the above is the fundamental plan of the fœtal placenta; the plan is afterwards merely elaborated.

The rest of the study is concerned with the finer details of the processes, with the nature and origin of the different forms of cells and, lastly, with the study of glycogen, fat and iron found in the placenta.

Employing micro-chemical methods, Chipman was able to follow all these stages. He found, for example, that glycogen, as such, could never be detected in the fœtal portion of the placenta. On the eighth day it began to accumulate in certain cells of the maternal placenta, but here it reached its maximum between the twelfth and

sixteenth days, and diminished rapidly from now on to the twenty-second day. On this day it is to be noted in the fœtal liver, increasing in amount rapidly and steadily, until the end of gestation. These observations would seem to indicate that the glycogen is discharged from the maternal placenta in soluble form into the blood of the sinuses, that it is taken up by the fœtal cells and circulation and is then consumed, and that only at a relatively late period in the development of the fœtus, is their either sign of glycogen or of its precursors circulating in the fœtus, becoming deposited as such in the fœtal liver. The fat, it is interesting to note, makes its appearance in the liver cells about a week earlier and it accumulates until, at the period of gestation, the liver is richer in fat than at any other period. In the placenta the fat is noticed first upon the twelfth day and then in the fœtal portion rather than the maternal.

With regard to the iron, Chipman found that it appears first in the fœtal placenta and then on the fourteenth day, irregularly distributed through the mesodermic partitions which separate the blood sinuses. The iron granules in fact, always lie in the mesodermal cells. This deposit of iron in the fœtal placenta reaches its maximum upon the eighteenth day, and its maximum is coincident with the appearance of granules in the fœtal liver. Although in diminished amount, the iron continues to be found in the placental mesoderm until the close of gestation.

We congratulate Dr. Chipman upon having produced a work which, from its completeness and the care that has been taken to substantiate every statement made, by recourse to actual appearances in the tissues, is bound to be regarded as the authoritative publication upon the subject of which it treats.

A Text-Book of Obstetrics. By J. Clarence Webster, M.D. (Edin.), F.R.C.P.E., F.R.S.E., Professor of Obstetrics and Gynæcology in Rush Medical College. W. B. Saunders & Co., Philadelphia, New York, and London, 1903. Canadian agents, J. A. Carveth & Co., Toronto.

Dr. Webster is so well known in Montreal from his former connection with McGill College, and the Royal Victoria Hospital, that any work from his pen is sure of a sympathetic reception in this city. As he is best known, perhaps, in connection with his work in Edinburgh, especially his researches in female pelvic anatomy and tuboperitoneal ectopic gestation, and later, his studies of the minute anatomy of placentation, it is not surprising to find that in his book the anatomy and physiology of pregnancy have received careful attention. In the

space of 94 pages he has succeeded in giving a description of modern views and theories so clear and concise as to be easily within the comprehension of the average student. The illustrations, which are numerous and for the most part original, help very much in simplifying a subject which the student usually finds very hard to understand. He criticizes the statement so commonly found in text-books, that both *arteries* and *veins* open into the intervillous spaces, and proposes to substitute the terms *afferent* and *efferent* vessels, since their structure is more like that of dilated capillaries than of true arteries and veins. Further, he holds that there is no systematic or orderly arrangement of these vessels, but that afferent and efferent vessels open indiscriminately on the decidual surface, between, as well as upon, the decidual elevations. He takes issue, therefore, with Bumm and others who describe a particular and definite arrangement of these vessels.

The chapter on the anatomy and physiology of normal labor is also very good, and is well illustrated. In the explanation of the mechanism of *internal rotation*, he makes the sacral segment of the pelvic floor the chief factor, pointing out the incorrectness of Olshausen's view that internal rotation is merely the result of a movement of the trunk. He rejects also the explanations of those who attribute rotation to the shape of the head, for rotation occurs in other presentations than those of the head; also of those who attribute this movement to the influence of the inner surface of the bony canal on the fœtal head, for rotation occurs in breech and transverse cases and in pelves so deformed that the normal relationships are absent. If there is one thing more than another upon which the student should have clear ideas, it is regarding the mechanism of labour. It is indeed gratifying to find an author who gives forth no uncertain sound in this regard, and who, from clinical experience, confirmed by the study of frozen sections, is able to brush aside those theoretical explanations which have done so much to confuse the mind of the student and divert his attention from the plain and simple mechanism which he must grasp firmly if he is to carry out his practical work with intelligence and success.

In the management of labour, in dystocia, and in operative obstetrics the author follows chiefly the teaching of the Edinburgh school. It would be desirable, however, that in subsequent editions he should expand somewhat this portion of his book, which does not receive so complete and satisfactory a treatment as the earlier portions devoted to anatomy and physiology.

On the whole, the book is excellent and suggestive, and should be in the hands of every one who wishes to know something of the science as well as of the art of obstetrics.

J. C. C.

A Text-Book of Diseases of Women. By Barton Cooke Hirst, M.D., Professor of Obstetrics in the University of Pennsylvania, Gynæcologist to the Howard, the Orthopædic, and the Philadelphia Hospitals. W. B. Saunders & Co., 1903. Canadian Agents, J. A. Carveth & Co.

Following the introductory chapter, upon instruments and methods, the author begins at the vulva and dutifully following his many predecessors, pursues his descriptive way up the genital tract to the ovary; an index is appended and the work is complete.

This book of Prof. Hirst's is much better than many others and is deserving of rank with Dudley's. It is a companion work to the author's Text-book of Obstetrics, and follows much the same lines. It is essentially a practical book, the work of a busy surgeon, designed especially as a practical guide to those who read. The various conditions are sharply, if shortly defined; the clinical pictures are drawn clearly and the treatment, surgical or medical, generously designated. The whole atmosphere is utilitarian, rather than scientific, but its quality is always accurate and well-chosen.

The author tells us that he writes in the light of twenty years' experience, and the book everywhere shows this, for everywhere the actual practical dealings at the bedside and in the operating-room, are kept well in view. The scientific aspect of the work is always subsidiary, and viewed in this light alone, the book is unequal and not infrequently weak. This is specially noticeable in Parts v and viii, "Diseases of the Cervix Utero and the Fallopian Tubes." Professor Hirst's text-book, while designed for the use of both, meets more adequately the need of the young practitioner who desires to know what to do and how to do it, than the requirement of the student whose concern is, or ought to be, equally, with the ætiology and nature of the disease. The chapter on Displacements of the Uterus is exceptionally judicial. Undue prominence seems to be given to Anomalies of Development and why, in the closing chapter, "Gynæcological" should be still further mutilated, from 'gnecologic' to 'gynecic' is not quite clear. An especial feature of the book is the clearness with which the different operative procedures are described; the meaning is always plain and the text, while profusely, is for the greater part temperately illustrated. The microphotographs and water colours are with few exceptions original and they are excellent and well produced. Whilst many of Prof. Hirst's colleagues have enjoyed a twenty years' experience, there are few of them who could write so lucid a book.

W. W. C.

PHYSICAL DIAGNOSIS OF DISEASES OF THE CHEST. By RICHARD C. CABOT, M.D., Harvard Medical School. Second edition, 147 illustrations. New York, William Wood & Co., 1903.

This book, in spite of the author's too modest deprecation, does contain a great deal which is original. Good writing in itself in medical works is now so rare as almost to amount to originality. Most books on diagnosis are merely a propagation of errors, as Dr. Cabot points out, that the aortic second sound is louder than the pulmonary second sound, that aortic regurgitant murmurs are best heard in the second right interspace, that a hypertrophied left auricle can produce dulness and pulsation near the left sternal border, that systolic retraction at the cardiac apex means adherent pericardium, and that epigastric pulsation denotes hypertrophy of the right ventricle. Dr. Cabot has approached his subject with a fresh mind, hearing ears and seeing eyes. If he sees and hears fewer things than others who have written books upon diagnosis, it is because he does not confuse facts with inferences. Dr. Cabot thinks that many instruments of precision are of value, if they were not continually getting out of order—which is a wise observation. The chapters on percussion and on early phthisis are nothing short of the expression of a master workman with his hands. The whole book is a refreshment.

DISEASES OF WOMEN. By ARTHUR H. N. LEWERS, M.D., Lond., F.R.C.P. Sixth Edition, 551 pages. H. K. Lewis, London, 1903. 10s. 6d.

This is the sixth edition of Dr. Lewers' well known book, in which he has utilized the enormous experience he has gained as obstetric physician to the London hospital these fifteen years past. All the obsolete operations have been removed from consideration, and if the book be compared even with the third edition, published in 1891, many other changes are observable. Fibroid tumours beginning in the cervix are well worthy of the attention they receive. The catechising of the woman is very vivid, but there is no necessity for introducing into a scientific book the jargon of the outpatients' department of the great hospital in Whitechapel road. One or two examples will serve: "Did you come on quite regular at first, or after seeing it once, did it leave you for some months"? "When were you first poorly in your lifetime"? "Seeing nothing." "Skin-cracks," "stomach," for abdomen. Many of the pages are defaced by italics, brackets, and the frequent employment of "i.e." and "e.g.", to say nothing of such expressions as "peri-, or parametris." Many of the illustrative cases are trivial and the histories of them prolix. Objecting to these small things may appear

as an eccentricity on the part of a reviewer, but they mar the pleasure in reading an otherwise excellent book, and it would be so easy to remove them from a book which is passing through so many editions.

A Handbook of the Diseases of the Eye and their Treatment. By Henry Swanzy, A.M., M.B., F.R.C.S.I. Eighth edition, 678 pages, with illustrations. London, H. K. Lewis, 1903.

It is with pleasure we greet the appearance of the eighth edition of Swanzy's really valuable handbook of diseases of the eye. The observations and statements in this work have always been so uniformly accurate, that it can not be too strongly recommended to the student of Ophthalmic Surgery. Reviews of previous editions of this book leave but little to be added in regard to the present one. Some obsolete matter has been left out and much new matter added; especially is this noticeable in the description of operations, the use of the magnet, the description of new forms of ocular disease, such as conjunctivitis petrificans, guttate keratitis, lymphangeoides of the eyelid. The article on sympathetic ophthalmitis has been greatly extended, and the author favours the title of Ophthalmia Migratoria as more faithfully indicating the etiology and nature of the disease, the disease being a uveitis and often optic neuritis, which has arisen by direct transmission or migration of bacteria by way of the optic nerves and commissure, from the injured eye to the sympathizing one.

The chapter on ocular symptoms in connection with cerebral disease, is a thoroughly useful one and will be of much service both to the student and practitioner. Little remains to be added except to mention the admirably lucid style of Mr. Swanzy's descriptions, and also the good general "make-up" of the book as a specimen of the publisher's work. *J. W. S.*

Modern Methods in the Surgery of Paralysis, with special reference to muscle grafting, tendon transplantation and arthrodesis. By A. H. Tubby, M.S., Lond., F.R.C.S., Eng., and Robert Jones, F.R.C.S.E. Macmillan & Co. 10s.

The authors of this excellent book begin by passing in review the literature that deals with the causes and course of infantile paralysis, quoting cases that have come under their own observation and referring to the epidemics in which this disease has so often been seen. This section of the work together with the chapters on general treatment and the prevention of deformity are treated at sufficient length to make them of the utmost value to the practitioner.

In the chapter on mechanical treatment great stress is laid on the position in which the limb is splinted. The intact muscle groups

are extended and the affected muscles thus put at rest and relaxed. This, together with the muscle treating, is the mainstay of the treatment. The authors say, "We cannot speak highly of electricity either in the early or later stages of the disease, a combination of voluntary movements and massage is invariably more effective." With this conclusion we quite agree. In complete paralysis of the elbow a new method of fixing the joint in flexion is described by dissecting off a diamond-shaped area at the bend of the elbow and suturing the upper and lower angles. They claim a much more useful arm for this procedure. The various operations for tendon and muscle grafting are well described and illustrated by diagrams, and case reports and the possibilities of nerve grafting are indicated. The advantages and disadvantages of arthrodesis in flail limb are discussed at length and the operation described. The book concludes with a section on paralysis from fractures and dislocations, sections of nerves, spina bifida, etc. The descriptions of principles of treatment is lucid and concise, the illustrations are clear and diagrammatic, a distinct relief from the photographic method, and the cases cited are convincing. It is the most serviceable and thorough handbook of this subject, and one that must commend itself to every man under whose notice these unfortunate and unsatisfactory cases have been brought.

Clinical Examination of the Urine and Urinary Diagnosis. By J. Bergen Ogden, M.D., formerly Instructor in Chemistry, Harvard University Medical School. Second Revised Edition, 418 pages, illustrated. Philadelphia, New York, London: W. B. Saunders & Company, 1903. Canadian Agents, J. A. Carveth & Co. Cloth, $3.00.

This is a work upon the chemistry of the urine and also upon the relation of the various constituents to physiological and pathological processes; that is, it deals as well with the diagnosis of disease in so far as that can be arrived at by urinary examination. In this, the second edition, important changes have been made in Part I., especially in connexion with the determination of urea, uric acid, and total nitrogen; and the subjects of cryoscopy and beta-oxybutyric acid have been given a place. It is probable that Dr. Ogden has gone a little too far in assigning importance to the urinary changes in such diseases as melancholia, and in epilepsy; the alteration is probably merely the result of muscular effort and not of intoxication. The sections upon albumen and diabetes are extremely sensible, and the references to the literature are full and correct. Rather a careful examination fails to disclose any useful test, which has not received full consideration in this book, and the inferences from them are made with justness.

A Manual of the Diseases of the Eye. By Charles H. May, M.D., Adjunct Ophthalmic Surgeon to Mount Sinai Hospital, New York. 3rd Edition, 410 pp., with 275 original illustrations and 16 plates with 36 coloured figures. Cloth, $2.00. William Wood & Co., New York. Canadian agents, Chandler & Massey.

This little book deserves the success with which it has met. For the undergraduate of medicine it is probably the best work on ophthalmology published in English. Naturally in so small a space it is impossible to deal with every phase of the subject, but the author has presented everything in modern eye surgery the student should know in a concise and very attractive manner. The text is clear and well arranged; the illustrations numerous and well placed. The photographs employed in this edition for the first time are surprisingly clear and instructive. The size of the book accounts not a little for its popularity, and we hope the author will keep the volume within its present limits.

A Text-Book of the Practice of Medicine. By James M. Anders, M.D., Professor of the Practice of Medicine, Medico-Chirurgical College, Philadelphia. Sixth Edition, revised, 1,300 pages, illustrated. Philadelphia, New York, London: W. B. Saunders & Company, 1903. Cloth, $5.50; leather, $6.50.

In the February number of this Journal, the fifth edition of Dr. Anders' well known text-book was fully considered, at a date so recent, there is no need to deal with this, the sixth edition, with any elaborateness. Many will think that the appearance of six editions in as many years of a book containing considerably over a thousand pages is indubitable testimony to its value; certainly, that fact attests to its popularity, and the favour with which it has been received is easy to understand, in view of the wealth of material the book contains, and the bearing of much of its contents upon the treatment of disease.

Progressive Medicine. Edited by Hobart Amory Hare, Vol. III., September, 1903. Lea Brothers & Co., Philadelphia and New York.

This volume deals with diseases of the thorax and its viscera, including the heart, lungs and blood vessels, by William Ewart; Dermatology and Syphilis, by William Gotheil; Diseases of the Nervous System, by William G. Spiller; Obstetrics, by Richard C. Norris. This series has been referred to so often in these pages, that it is only necessary to mention that the present volume maintains the high standard of fulness and accuracy established by the previous ones. The references are particularly valuable.

SCHEME FOR THE DIFFERENTIAL TESTING OF NERVES AND MUSCLES, for use in diagnosis. G. J. MONTGOMERY MOSHER, Albany Medical College. Brandon Company, Albany.

These tables are the result of examinations made at the Albany hospital. Every point of importance upon the body is noted in coloured charts and further described in a concise text. For those, who are impressed with the necessity for an exact knowledge of the electric reaction of muscles for purposes of diagnosis, this book, plates and text will be of great value.

SQUINT: ITS CAUSES, PATHOLOGY AND TREATMENT. By CLAUD WORTH, F.R.C.S. London, John Bale, Sons and Danielson, Ltd.

This little book of two hundred and thirty pages represents the views of the author after a careful study of twenty-three hundred cases of squint in several London Hospitals. There are new theories expressed regarding the causes and treatment of this common affection which require to be read by every ophthalmic surgeon. The book is well illustrated and merits a place in any library devoted to the surgery of the eye.

CANCER AND PRECANCEROUS CHANGES, their origin and treatment. By G. H. FINK, M.R.C.S., Eng. Major, Indian Medical Service (retired). London, H. K. Lewis, 1903.

This booklet of 105 pages assembles in convenient compass all that is known and much that is surmised of cancer The statistics, which were scattered through various books and periodicals, are tabulated and made available for reference, and the account of cancer in tropical countries is full of interest. The author believes that circumstances point strongly to an analogy between cancer and malaria.

AIDS TO PHYSIOLOGY. By PEYTON T. B. BEALE, F.R.C.S., Eng. Ballière, Tindall and Cox, London, 1903.

This little book is of the familiar aid series, and contains all which is required by law for the student to know. It is intended to be supplementary to the text-book, lectures and practical work; as such it has a usefulness, and is likely to be much sought after by students.

A LABORATORY GUIDE IN URINALYSIS AND TOXICOLOGY. By R. A. WITTHAUS, Fifth Edition. William Wood & Co., New York.

One would like nothing better than to be a student and follow this guide through the whole course. In the end there would be very little in urinalysis he did not know.

Medical News.

TORONTO UNIVERSITY.

The formal inauguration of the Federated Medical Faculty of Toronto University, took place at a special convocation on the 2nd October. The prevailing sentiment was hope for the future. The necessity of generous aid to the school was strongly urged, and the government was assured that in making the college one of the leading medical institutions in America, it would receive the endorsement of the people of Ontario.

The first candidate for the honorary degree of doctor of laws, was William Keen, of Jefferson Medical College, Philadelphia. Dr. Keen in acknowledging the honor dwelt on the necessity for providing a complete university hospital in order to afford the students the opportunity of obtaining the best practical education. Speaking from his own experience of forty years, he said that students were the best whip and spur of which he knew. The medical man who works under the eye of a hundred students would do better than one working alone. He would be compelled to keep up with the times, and in perfect touch with the most recent developments in modern practice.

Rev. Prof. Clark introduced William Henry Welch, Professor of Pathology, Johns Hopkins University. Dr Clark spoke of Dr. Welch as one who honoured the university by accepting a degree, as he was known as an important man in the medical and literary world, and was also distinguished for his kind and generous helpfulness to the student body.

Dr. Welch said he appreciated very highly such an honour from a Canadian university, as he did not consider it a foreign institution, but one in which he had a brotherly interest. He strongly endorsed the remarks of Prof. Keen, especially in regard to a university hospital, and was sure there was a great future in store for the medical school, as he had been greatly impressed with the men he had met and was confident of their ability.

R. Ramsay Wright, vice-president of the university, introduced Dr. William Osler, and he was received with much applause. Dr. Wright said that the name was so familiar he felt as if they should appropriate its bearer for the new college. He had been very fortunate in his ancestry, as a man's success was due chiefly to heredity and only partly to education. The speaker was glad to say that Dr. Osler's first leaning to biology had been directed by a Canadian institution.

A short speech was made by Dr. Osler in appreciation of the honour

conferred on him. The degree of LL.D. had a number of disadvantages he said, as, it was believed that the recipients did not do much for the world, but had only reached an ornamental stage. It was beyond his power to suitably express the feeling of an old student at witnessing the prosperity of his alma mater.

Russell Henry Chittenden, Professor of Physiological Chemistry, in Yale University, was presented by Dr. McPhedran in a short resumé of his attainments. The recipient in his reply dwelt on the important part that his department was to play in the future of medicine. The University of Toronto had an opportunity to develop this phase of study, but it must have money and brains. There must be an opportunity for research, such as would induce students to stay and keep their young men. The strength of the university depended on the strength of its men.

A. B. Macallum in introducing Charles S. Sherrington, Professor of Physiology in the University of Liverpool, stated that very few men could rank with him in his contribution to medical science. There were very few departments in which he had not made some change, especially in neurology. The honorary degree had never been more worthily bestowed than on Dr. Sherrington.

The exercises were concluded by the announcement by President Loudon that, on account of the illness of Henry Pickering Bowditch, Professor of Physiology in Harvard University, he would ask the vice-chancellor to confer the degree on him in absentia.

An informal dinner was tendered in the evening by the medical faculty to the visitors.

The new university buildings for physiology, pathology and medicine, were formally inaugurated on Thursday, 1st October, at the new buildings; addresses were delivered to the final classes by Dr. Keen, of Philadelphia, Dr. Welch, of Baltimore, Dr. Adami, of McGill, and Dr. Abbott of the University of Pennsylvania.

Dr. Welch, in his address, reviewed the history of pathology, showing how the growth of knowledge of physical life proceeded by generalization, followed by demonstration. He paid a high tribute to Virchow, who had reduced the theory of cellular life to fact; and also to Pasteur, who had done inestimable service by his investigation in the causation of disease, and his discoveries of parasitic organisms in the human body. Koch's creation of a simple technique of pathology had also led to many great discoveries. He assured the students that a scientific interest in pathology would add greatly to the interest and pleasure of their lives as practitioners.

Dr. Adami combatted the reaction against scientific teaching, and

warned students that if they relied solely upon the written word their future careers would be in danger. The physician should regard each case as a problem, and should deal with it in a rational way and not by tradition. He paid a high tribute to the preliminary training in biology given at Toronto University, and said it had enabled it to send out many specialists to American universities. Prof. MacCallum's work in investigating the physiology of the cell, illumined the path of pathology.

QUEEN'S UNIVERSITY.

The formal installation of Principal Gordon, of Queen's University, Kingston, took place on the 15th October, in the presence of a large audience of citizens, delegates and guests. Dr. Gordon's address dealt with the spirit of Queen's, with educational, spiritual and national ideals. Addresses were also given by Lieut.-Gov. Clark, R. L. Borden, M.P., J. P. Whitney, President James, of the Northwestern University, Chicago; Principal Hutton, of University College, Toronto and Rev. Dr. Milligan, Toronto.

Honorary degrees of LL.D. were conferred upon the following:

Vincent H. Moore, M.D., Brockville; Hon. Wm. S. Fielding, Robt. L. Borden, Hon. Wm. M. Clark, Lieutenant-Governor of Ontario; H. L. Wilson, Baltimore; John Cox, Montreal; R. Ramsay Wright, Vice-President University of Toronto; Edmund James, Northwestern University, Chicago; Victor Goldschmidt, Heidelberg; Principal Peterson, McGill University; Hon. G. W. Ross, J. P. Whitney, Walter C. Murray, Dalhousie University; Dr. H. H. Chown, Manitoba University; Rev. Dr. G. M. Milligan, Toronto; Chancellor O. S. C. Wallace, MacMaster University, Toronto; Vice-President H. P. Judson, Chicago University; J. E. Creighton, Cornell University; President D. Allison, Mount Allison College; Principal J. Galbraith, Toronto; Sir Wm. Hingston, Laval University; Hon. Richard Harcourt, Principal Morris, Hutton University College, Toronto; Chancellor Burwash, Victoria University; Rev. O. Rigby, Trinity University.

Doctors of Divinity—Rev. D. P. Fletcher, moderator of General Assembly; Rev. Salem Bland, Wesley College, Winnipeg; Rev. H. J. Cody, Wycliffe College, Toronto; Rev. Malcolm MacGillivray, Kingston; Rev. John Mackie, Kingston; President Trotter, Acadia University, Wolfville; Rev. John Campbell, acting principal Presbyterian College, Montreal.

Dr. W. L. Herriman, of Lindsay, Ont., the only known survivor of the first graduating class of the Medical School in 1855, addressed the meeting.

Dr. Connell has since been elected Dean of the Medical Faculty in succession to the late Dr. Fyfe Fowler.

McGILL UNIVERSITY.

The number of students registered in the Faculties of Arts, Law and Applied Science at this date are as follows.

Faculty of Applied Science—Undergraduates: First Year, 108; Second Third Year, 46; Fourth Year, 51; total, 227. Partials: First Year, 77; Second Year, 22; Third Year, 11; Fourth Year, 1; total, 111. Graduates, 6; total 344.

Faculty of Law—Undergraduates: First Year, 12; Second Year, 7; Third Year, 18; total 37; Partials, 2; total 39.

Faculty of Applied Science—Undergraduates: First Year, 108; Second Year, 80; Third Year, 58; Fourth Year, 47; total, 293; Partials, 14; Graduates, 2; total, 309.

LAVAL UNIVERSITY.

On October 14th the religious exercises, attendant upon the opening of Laval University, were held in the Cathedral. The principal feature was the celebration of the Solemn High Mass of the Holy Ghost. His Lordship, Bishop Emard, of Valleyfield, officiated, and the various faculties of theology, philosophy, law, medicine, science and arts attended in a body, all attired in their official garments. Bishop Emard addressed a few words and Father Chas. Lecocq, superior of the Seminary of St. Sulpice, delivered an eloquent address.

OTTAWA ISOLATION HOSPITAL.

Patients who were compelled to resort to the Ottawa Isolation Hospital, have observed that the disease with which they suffered on entering, gave way to an entirely different one before they were many days in residence. This phenomenon aroused some interest, and the two medical societies were requested to undertake an investigation. The text of the Ottawa Medical Society is worth reproducing, as it agrees in substance with that published by the Clinical Society:

After a thorough examination of the building and a rigid questioning of the staff we find:—

That the clerk shares her office with the lady superintendent and the house surgeon; her bedroom is with the nurses of the diphtheria ward. The clerk, amongst other duties opens the front door, answers the telephone, and hands visiting physicians their gowns. In her absence these duties are performed by the lady superintendent, or a nurse from the diphtheria ward.

The lady superintendent and the house surgeon do not change their clothes in going from one department to another in the discharge of their various duties. Owing to the arrangement of the building it would be almost impossible to make the numerous changes of clothing required.

On leaving the entrance to go to any part of the building it is necessary to pass through a corridor connecting the two wings of the diphtheria ward. This is practically going through that ward.

The chute for infected and soiled linen is common to both floors.

There are two large ventilating shafts, one for each wing of the building. In each wing the various wards, public and private, and the dining rooms have all connexions with this shaft, but as there are no fans, the draft of air under certain atmospheric conditions is into the room supposed to be ventilated.

Lavatories—None of these are supplied with ventilators.

Dumb-waiters—Though there is a separate one for each floor and the utensils are all sterilized before being returned to the kitchen, as there is but one kitchen, which is generally hotter than the wards above, there is a constant interchange of air and flies between the different floors. The flies are very numerous in the several kitchens.

Admission room—All patients are admitted and examined in the same room and are then sent up by the common stairway or elevator to their respective floors. The kitchen help have to go through the entrance on their way to and from the store room.

Sterilizing room—The man who puts the bundles of infected clothing into the sterilizer takes his meals with the cooks and laundresses. The laundry is well equipped and no fault can be found with it.

The pathological work for both diseases is done in the same laboratory.

Elevator and stairway—The only stairway in the building runs around the elevator shaft, and is a perfect fire trap; the elevator itself is simply a warehouse hoist, which should not be used for patients. Accidents have occurred due to its faulty construction.

The nurses have separate dining rooms but there is a common kitchen and the same maid waits at table in both rooms.

The maids for the different wards have bedrooms widely separated, but eat at the same table.

The house surgeon has no bath-room. He has to use the ward bath and keep his street clothes in his bedroom with his hospital uniform.

There is now a case of mixed infection in the scarlet fever ward, attended to by a nurse who has also under her care some cases of pure scarlet fever. There is absolutely no means of isolating mixed infections.

There have been treated since the hospital opened, 184 cases of scarlet fever, and 194 cases of diphtheria. Twenty-four cases of scarlet fever were complicated with diphtheria on admission. Nine cases of scarlet fever developed diphtheria, after admission, during convalescence; five of these occurred in three beds which were opposite an opening in the ventilating shaft. Three cases of diphtheria developed scarlet fever.

From the foregoing it will be seen that these infectious diseases, are in no wise isolated, one from the other, nor can they be, while these structural and administrative defects remain. On this account we must absolutely condemn the building as it now stands. We take this opportunity of congratulating the hospital staff on the splendid results they have shown under the most disadvantageous circumstances.

In our opinion the proper way to carry out isolation is in separate buildings. We would, therefore, recommend that the present building with some alterations be used for scarlet fever and administration, that another building be provided for diphtheria and that the annex have another story added to it to be used for cases of mixed infection and such other infectious diseases as do from time to time arise in every contagious hospital.

Dr. Klotz has since resigned and Dr. T. C. Ballantyne was appointed in his stead, but Dr. Ballantyne also gave up the post after observing the condition of the hospital.

ST. LUKE'S HOSPITAL, OTTAWA.

The annual meeting of the St. Luke's Hospital was held on the 14th October. The Treasurer's report showed that in addition to the special fund of $29,892.06, there were received during the year for ordinary maintenance cash subscriptions from the public $2,223.86; civic grant, $1,024.86; county grant, $200, and provincial grant, $1,520.29; from patients, $10,767.76. The expenditure including salaries, hospital staff, $5,417.78; floating indebtedness and current expenses, $19,780.92, leaving a balance of $713.86.

Dr. R. W. Powell presented the honorary secretary's report. During the year there were 474 surgical operations. The total number of admissions for the year ending September 30th, was 945. Of these 478 were males and 467 females; 521 were Protestants, 398 Roman Catholics, and 26 belonged to other denominations; 751 were Canadians, 54 English, 61 Irish, 27 Scotch, 13 Americans and 39 came from other countries; 540 patients lived in Ottawa, 75 outside in the county, 148 in other countries of Ontario, 169 in other provinces and 4 in other countries. Of the total number 875 were discharged and 32 died.

There were 38 patients remaining in the hospital on September 30th. The average length of a patient's stay was 18.16 days, slightly below last year's average stay. Of the patients discharged, 717 were cured, 136 improved; 7 showed no improvement, and 15 were not treated.

WESTERN HOSPITAL.

The report of the Western Hospital for the quarter ending 30th September, 1903, shows that during the quarter 146 patients were admitted; 136 were discharged and 7 died; 37 were medical; 75 surgical; 34 gynæcological.

Out-Door Department—Total number of consultations for the quarter, 1,941; medical, 617; surgical, 374; gynæcological, 372; eye and ear, 157; nose and throat, 259; skin, 47; genito-urinary, 115.

Report for September—Number of patients admitted, 43; discharged, 39; died, 4. Out-Door Department—Total number of consultations, 684; medical, 221; surgical, 122; gynæcological, 141; eye and ear, 56; nose and throat, 88; skin, 18; genito-urinary, 38.

THE ROYAL VICTORIA HOSPITAL.

Patients in Hospital, August 31st, 175; admitted during September, 261; discharged, 209; died, 12; patients in hospital September 30th, 215; cured, 152; improved, 51; unimproved, 2; not treated, 4; medical, 86; surgical, 111; ophthalmological, 17; gynæcological, 38; laryngological, 9; males, 128; females, 133; daily average, 196; Out-Door Department, 2,264; ambulance calls, 68.

NOTRE DAME HOSPITAL.

During the month of September 112 patients were treated in the wards, and 1,657 in the Out-Door Departments.

OTTAWA MEDICO-CHIRURGICAL SOCIETY.

The medical men of Ottawa have formed a new society, the Medico-Chirurgical Society, by the amalgamation of the Ottawa Medical and the Ottawa Clinical societies, two organizations which for several years have existed and between which, in the old days, considerable rivalry existed. Regular meetings will he held and professional programmes arranged. The meeting was largely attended and nearly unanimous.

Officers were elected as follows: Honorary President, Sir James Grant, K.C.M.G.; President, Dr. H. B. Small; First Vice-President, Dr. Dewar; Second Vice-President, Dr. Webster; Secretary, Dr. C. H.

Brown; Treasurer, Dr. Kirby; Librarian, Dr. Seager; Curator, Dr. Royce. Executive Council; the president, secretary and Drs. Troy, Minnes, Echlin, Chabot, Horsey and Basken.

LA SOCIETE MEDICALE.

La Société Médicale resumed its meetings on the 13th October, in the halls of Laval University. Dr. Dubé presided, and the members present numbered 29. After reading the minutes of the last meeting, Dr. Jean Decary, secretary, reviewed the doings of last year.

The election of the officers for the present term resulted as follows: Dr. C. R. Valin, President; Dr. O. F. Mercier, Vice-President; Drs. A. E. Asselin and Jean Decary, were maintained in office, the former as Treasurer, and the latter as Secretary.

Dr. Dubé installed the new officers and a vote of thanks was given to those going out of office. Dr. Valin then addressed the members and expressed the wish that he would outdo his predecessors in bringing the work of the Association to the front and hoped he would be strongly seconded.

The report of the vital statistics of the province of Ontario for the year 1902, shows that there were 47,796 births during the year, as compared with 46,061 in 1901, or an increase of 1,735. The number of marriages in 1902 was 18,072, an increase of 37 over the preceding year. The number of deaths during the year was 27,864, in 1901 it was 29,608, showing a decrease of 1,744. According to population, the rate per thousand of births was 21.1 in 1901; 21.7 in 1902; of marriages, 1901, 8.2; in 1902, 8.2; of deaths, in 1901, 13.6; in 1902, 12.6.

The death rate of Montreal per thousand, according to the report for the year 1902, is 22.58. This is a slight decrease as compared with 1901. The marriage rate per thousand is given at 9.22, and the birth rate is 38.65.

The additions to the General Hospital at St. John, N.B., are proceeding satisfactorily. The work of raising the main building one story is also progressing rapidly. On the two wings of the building the new story is to be of wood, covered with iron sheathing, and in the centre of the building the addition is of brick. The southwest wing has already been raised.

The Government of the Kingston General Hospital will at once erect a suitable building on the hospital grounds for the treatment of con-

sumptives who have the disease in an incipient form. The building will be fashioned after those used at the Gravenhurst Sanitarium.

Dr. E. G. Simpson, McGill, '01, of Lennoxville, was buried on the 28th September. The professors and students of Bishop's College, and the headmaster and boys of Bishops' College school attended in a body.

Dr. John Reid, of Watford, Ont., died on the 21st September, aged 76 years.

Dr. G. C. Field, Woodstock, Ont., died on the 14th October, after an illness of five weeks.

Dr. A. C. Bourbeau, Laval, '02, died of typhoid fever on the 27th September at Ste. Agathe.

Dr. W. Irving Goodwin, of Oxford, N.S., died on the 24th September, in the thirty-sixth year of his age.

Dr. A. E. Gardiner, of Bearbrook, died on the 15th September, in his 37th year. His home was formerly in Belleville.

Dr. Stephen Hepworth, Manitoba University, '03, died at the St. Boniface hospital of typhoid fever, on the 20th September, aged 28 years.

Dr. James R. Cox, McGill, '00, for two years secretary of the McGill Y. M. C. A., left Ottawa on the 26th October for China, to engage in missionary work.

Retrospect of Current Literature.

SURGERY.

UNDER THE CHARGE OF GEORGE E. ARMSTRONG.

The Treatment of Sarcoma of the Long Bones.

KARL VOGEL. "The Treatment of Sarcoma of the Long Bones." *Deut. Zeit. f. Chir., Sept., 1903.*

DR. BORCHARD. "Resection of the Femur for Malignant Tumors." *Langenbeck's Archiv., 1903*—Heft 3.

One of the surgical questions which have been of late years more or less discussed, concerns the extent of the operation that should be undertaken in the case of sarcomata of the long bones; and the two papers cited above represent contributions to this subject.

Since Krause, reporting in 1889 a series of cases from v. Volkmann's clinic cured by conservative operations, impressed upon the profession

the essential benignancy of the endosteal myeloid, or giant-celled sarcoma, these growths have been very generally removed by an operation which stops short of amputation, either a simple scraping out or a resection; and the results seem to have justified this conservatism.

Bloodgood, of Johns Hopkins, has lately reported cases of this nature from Halsted's clinic (Johns Hopkins Bull., May, 1903), and reviewed the literature (Progressive Med., Dec., 1902, p. 150). Borchard's case was a sarcoma of the femur of the endosteal giant-celled type, in which he did a resection of the diaphysis, removing 26 cm., and uniting upper and lower ends of the bone with silver wire. Healing went on smoothly; bony union was complete at the end of 5½ months; and—what lent especial interest to the case—the muscles, left disproportionately long by the removal of so much bone, gradually shortened and adapted themselves to their former functions. The patient a year and a half after operation showed no recurrence; and the function of the limb, aided by a high shoe, was relatively good.

In selecting cases for resection, as opposed to amputation, one's judgment should rely, according to Borchard, very little upon the histological diagnosis, not greatly upon the gross relations of the tumour to surrounding parts, but chiefly upon its clinical course—slow growth and a good general condition.

Vogel's article goes into a wider discussion of the question. He presupposes that surgeons are now practically unanimous in treating myeloid endosteal sarcomata conservatively, provided that the clinical course and the macroscopic relations indicate a relative degree of benignancy. The microscopical picture is of no assistance in forming a prognosis or deciding upon the extent of operation. If the bone is broken through and the soft parts invaded, a resection may still cure, as is proved by a number of cases; but conservatism here begins to tread dangerous ground.

The chief part, however, of Vogel's article is taken up by a consideration of conservative operations in the definitely malignant sarcomata, of the spindle and round-celled types. Most surgeons will probably deny the advisability of ever even thinking of anything short of amputation or exarticulation in such cases. And yet, as great a man as v. Mikulicz, eight years ago took the stand that "in selected cases a conservative resection ought to be brought more frequently into consideration than had been hitherto done." His argument was in the main that, as regards metastases, resection was on an equality with amputation, inasmuch as, if they were to occur at all, they were already present. Further, a patient was generally inclined to refuse an amputation, where he would welcome a resection; and that if

"amputation or nothing" had to be his choice, he was frequently driven to quacks and returned later for amputation when it was too late. Thus the gross mortality was in reality increased. The weak point in the argument, as König pointed out at the time, lay in the fact that local recurrence from foci left in unresected bone was much more likely to develop after resection than after amputation. Against this v. Mikulicz urged careful watching and early second operations where necessary. For the finer points in the argument the reader is referred to the orginal.

Vogel, after reviewing the somewhat scanty literature, reports in detail a case of Schede's, which in his opinion, lends support to the views of v. Mikulicz. The tumour was a "round-celled sarcoma of the character of a chondromyxosarcoma," situated in the upper end of the humerus, of two years' duration; operated a year and a half previously, with recurrence in a few months. Schede did a resection, removing all save the lower 3 cm. of the humerus in slices, inasmuch as at each slice the medulla was found affected until he approached the elbow-joint. He also took away the ends of the clavicle and the scapula which were diseased in the neighbourhood of the joint; and the affected muscles. The main vessels and nerves were not involved, and could be spared. The patient was discharged well in 26 days, with a leather prosthesis fastened to shoulder and chest for the upper and part of the lower arm, provided with a joint at the elbow. Function was ultimately good, and there was no recurrence in four years.

While Vogel gives us here a clear case of a definitely malignant round-celled sarcoma cured by resection, a careful review of the literature which he cites has shown the reviewer that his case stands practically alone. Only one other case, that of a spindle-celled sarcoma of the lower end of the femur (Nasse), showed no recurrence after the lapse of three years. All the others, including several of v. Mikulicz, are seen either to have shown recurrences or to have been followed but a short time.

One apparently paradoxical point is emphasized in Vogel's article; that the more proximal a tumour is situated, the greater is the indication for resection; the more distal it is, the greater for high amputation. In the first case the chances of metastasis and local recurrence are about equal as between resection and exarticulation; in the latter these dangers are much more certainly guarded against by high amputation.

Narcosis in Ileus.

W. Kausch. "Narcosis in Ileus." *Berl. Klin. Woch., 17th Aug., 1903.*

The author remarks on the danger of vomiting with consequent

aspiration—pneumonia, or even immediate drowning during operations for intestinal obstruction under general anæsthesia. The general recommendation to use local anæsthesia in such patients he shows to be justified in only two classes of cases: (a) Simple enterostomy and (b) incarcerated hernias. In all others, and in many also of the second class, the pain is so great as to exact general anæsthesia.

Under these conditions, the only way in which the above mentioned danger can be avoided, is to have the stomach empty. That washing out the stomach is often unsuccessful in this regard, is a fact well-known to all surgeons; for the intestinal contents simply flow back into the emptied stomach, and thence are vomited during narcosis. Indeed, vomiting seems to be an almost unavoidable result of the intra-abdominal manipulations. Kausch, therefore, has devised an ingenious modification of the ordinary stomach-tube, designed to prevent vomitus from reaching the larynx at all. It consists essentially in the attachment of a small rubber balloon to the stomach-tube just above its eye. After introduction into the stomach just before narcosis, this balloon is blown up; the tube is then withdrawn until the balloon blocks the cardiac orifice. Thus, the vomitus is conducted entirely through the stomach-tube, and can never be aspirated into the lungs. Kausch reports that in three cases the apparatus worked perfectly. There are other non-essential details which we have not space to describe. Kausch has named it the "Narcosis Stomach-Tube" (Narkose-Magensonde), and it can be obtained from Georg Haertel in Breslau.

Having witnessed one death on the table from "drowning in one's own vomitus," besides several cases of aspiration-bronchitis and pneumonia in these patients with ileus, the reviewer feels impelled to call especial attention to this simple and ingenious device, being assured that its use would save many a life. *E. W. A.*

The Formation of Loose Cartilages in the Knee Joint.

E. A. Codman, M.D. "The Formation of Loose Cartilages in the Knee Joint." *Boston Medical and Surgical Journal, Oct. 15th, 1903.*

From experience gained at the operating table and from experiments upon the cadaver, the writer believes that the great majority of such bodies are formed by a breaking away, by trauma, of a part of the articular surface, the cartilage bringing with it a lamina of spongy bone. The prevailing idea that these bodies are formed by a process of concretion, the nucleus being a clot of fibrin, a bit of torn fringe or a fragment of semilunar cartilage or of osteophytic origin, does not appear to adequately explain their formation. The writer's point of view, and originality is not claimed for it, appears to be well taken, and is

borne out by the series of skiagraphs illustrating the article and also by the fact that there is generally a scar found on the articular surface of the internal condyle of the femur, the part most liable to injury.

Value of Albuminuria in Differentiating Pyelitis from Cystitis

THOMAS R. BROWN, M.D. "The Value of Albuminuria in Differentiating Pyelitis from Cystitis." *New York Medical Journal* and *Philadelphia Medical Journal,* October 17th, 1903.

The writer gives a very simple way of differentiating pyelitis from cystitis requiring merely the precipitating of albumen by heat and acetic acid. The exact quantity need not be measured, but the amount roughly judged by the denseness of the precipitate. It was found that pyuria due to a cystitis, even if of a high grade, was associated with but a small amount of albumen, if the urine was examined immediately after catheterization, and the pyuria not accompanied by hæmaturia. In pyuria due to a pyelitis, however, a considerable quantity of albumen was found to be present. Nine cases are reported in which pyelitis was diagnosed or rendered probable as against cystitis and proved by cystoscopic examination or ureteral catheterization, or both, to be correct.

Two Cases of Ascites Secondary to Alcoholic Hepatitis Treated Successfully by Operation.

SINCLAIR WHITE, M.Ch., F.R.C.S. "Two Cases of Ascites Secondary to Alcoholic Hepatitis, Treated Successfully by Operation." *British Medical Journal, October 10th, 1903.*

A brief sketch of the history of epiplorraphy is given and a report of two cases successfully operated upon by the writer. Both cases were women over 30 years of age, who had been confirmed alcoholics for several years, and presented well marked ascites with œdema of the lower extremities, absence of jaundice, urine scanty and high colour, no albumen. Several tappings had been done without any permanent benefit. The danger of operative interference is a real one, but the mortality should be greatly reduced by a proper selection of cases. It should rarely be undertaken after the age of 55, the patient must be free from any other serious organic disease, the kidneys especially must be sound, while jaundice and mental aberration of themselves preclude surgical interference. He sums up the knowledge of the subject as follows:—

1. There is indisputable evidence that cirrhosis of the liver, accompanied by ascites, is not always a hopeless disease.

2. The ascites can be permanently cured in a considerable percentage of cases by operation.

3. There is reason for thinking that the operation of epiplorraphy may not only cure the ascites, but also lead to partial regeneration of the damaged liver cells.

4. Tapping alone has occasionally cured ascites, and should be tried once or oftener before proceeding with the more serious operation.

5. The operation of epiplorraphy is a formidable one, and should only be undertaken in selected cases.

In the same number William Sheen, M.D., M.S., F.R.C.S., reports a "Case of Operative Treatment for Cirrhosis of the Liver," with no recurrence of the ascites, six months after. Marked general improvement also followed in this case.

MEDICINE.

UNDER THE CHARGE OF JAMES STEWART, F. G. FINLEY AND H. A. LAFLEUR.

Headache.

GUTHRIE RANKIN, M.D. "Headache." *The Practitioner, Nos. 423 and 424.*

Since headache is a subject rarely considered in itself, the profession is under not a little obligation to Dr. Rankin for a comprehensive discussion of this variety of pain, wherein he dwells profitably upon its causation, classification, pathology, diagnosis and treatment. While heredity, age and sex, influence to a considerable degree the frequency of headache, (1) *personal circumstances* as habits of life, fatigue, etc., (2) *local disease* as disorders of the teeth, tumours and meningitis—together with disorders of the special sense organs, the eye, ear and nose, account in a yet larger degree for pain in the head.

For descriptive purposes the following classification is made:—

1. Organic headache is due to intra-cranial changes and as a rule is characteristic, especially when taken with accompanying symptoms.

2. Nervous headache, also known as *migraine* or hemicrania (Clavus may be here included). It is usually preceded by prodromal disturbances, vertigo, languor, tinnitus, excessive yawning, nausea, etc. It is continuous and of increasing intensity—and at the height of the paroxysm—nausea gives way to vomiting and relief is often thereafter experienced. This form of headache has hitherto been regarded as an hysterical manifestation, but Dr. Rankin does not consider it as such.

3. Neuralgic headache—*tic douloureux*: In this form, cold and damp, —decayed teeth, antral disease, exhaustion and depressed general health are, in many instances, the causes at work.

4. Toxæmic headache is the most frequent of all, and the pain is attributable to the action on the nervous elements in the brain of blood altered in its constitution by toxines—and the sources of such toxines are numerous and varied. Drugs, *diet*—alcohol, tobacco—nephritic gout, rheumatism, other fevers, impure air, may be mentioned.

5. Ocular headache—that form of headache produced by abnormali-

ties (1) in the ocular muscles, or (2) by astigmatic errors of refraction. Dr. Rankin claims that ocular abnormalities are responsible for a form of headache which differs from all others in the following particulars:— After prolonged use of the eyes in reading or writing there is blurring of vision, pain on movement of the globes, hyperæmia of the conjunctivæ and a tendency to congestion of the lids. The symptoms subside on resting the eyes.

6. Neurasthenic headache, which might have fallen under the class of toxæmia. This form of headache is always occipital and is frequently associated with a sense of constriction. This form of headache has been termed the headache of the "present century," and is always accompanied by vaso-motor phenomena, emotional instability, impossibility of mental effort and anorexia, together with other phenomena of neurasthenia.

7. The hæmic headache may be associated with plethora or anæmia. In plethora the pain is dull and continuous, usually extends from the forehead to the occiput, and is accompanied by heaviness and stupor. It is essentially the headache of alcoholic excess.

The headache of anæmia is apt to be acute and frequently vertical—but it may be either frontal or occipital. The recumbent position affords relief—and taking of alcohol is followed by like result.

In the treatment of headache the diagnosis of the *cause* is most important, and therefore each case is one requiring special study. The writer advises that in all cases of headache causes of peripheral irritation should be first sought for by a careful investigation of scalp, eyes, etc. "The state of the digestive organs ought to be inquired into and thereafter the condition of the blood, and of the vascular and nervous system must be ascertained," and so on for every possible cause—the physician should search in liver, kidney and brain and the various diatheses, and when the cause is found seek to remove it. Some valuable hints and formulæ are given for guidance in dealing with each variety of headache, which would repay a careful perusual.

The Results of Organotherapy in Addison's Disease.

Edward W. Adams, M.D. "The results of Organotherapy in Addison's disease." *The Practitioner, No. 424.*

After a little more than ten years of organotherapy in Addison's disease an inquiry into the results achieved is fitting, and of much interest. This article deals with the records of 97 cases, and the statements which Dr. Adams prefers to call deductions rather than "conclusions" are as follows:

1. There would appear to be a certain class of case of Addison's disease which derives indubitable benefit from the exhibition of some

form of suprarenal substance, though in any given case it remains up to now impossible to determine its probable response to the treatment.

2. In any given case of the disease selected haphazard, the probability remains that disappointment will follow on the institution of organotherapy; but that probability is very distinctly less than that attaching to any alternative method of treatment at present known.

3. The last word upon the preparation to be used and its method of administration remains yet to be said. The problem seems to be to get a sufficient and continuous dose of the pure and active principles unchanged into the blood stream. Intravenous injection is impracticable.

The "Idiopathic" or "Essential" Dropsies of Childhood.

Arthur Williard Fairbanks, M.D. "The 'Idiopathic' or 'Essential' Dropsies of Childhood." *The Amer. Journal of Med. Science, Sept., 1903.*

"The characteristic feature of this condition is the appearance of œdema, in one or more parts of the body, without albuminuria or sedimentary evidence of organic disease of the kidneys, and without clinical or post-mortem evidence of organic disease of the heart or kidneys."

It appears from the cases reported that it may be apparently primary or apparently secondary, and that it may be found in children of any age. In a study of the records, Dr. Fairbanks gathers together 168 cases—all in children under fifteen years of age.

Anæmia, marasmus and subnormal temperature with this affection are chiefly confined to the first two years of life. Of all the abnormal features that may be found associated with essential œdema, *disturbance* of the gastro-intestinal tract is by far the most common. The cause of such "dropsies" is doubtful. They have been explained as of *angio-neurotic* origin. The neurotic element may be considered, so also should the "gouty or rheumatic." Certain cases occur after infectious diseases, as scarlet fever, measles, varicella and typhoid fever. Perhaps anæmia and exposure to cold are the chief *causes* to which these dropsies have been ascribed, while to marantic and toxic conditions they have likewise been ascribed.

The writer states his views upon the etiology in the following paragraph:—

".....In the great majority of cases this affection is produced by a reflex sympathetic disturbance, having its origin in a direct exciting cause acting through the terminal filaments in the vessel walls. This exciting cause, provided it be sufficiently severe, may in itself alone evolve such reflex even in a normal condition of the nervous system,

but there is usually a predisposing condition anti-dating the action of the exciting cause....."

"Whether the transudation is brought about by an irritation of the vaso-dilators or by a paralysis of the vaso-constrictors, or whether it is the stimulation of secretory function" must remain a question. The reflex impulse in many instances has its origin in the terminal sympathetic fibres in the walls of the intestine and stomach.

W. F. H.

GYNÆCOLOGY.

UNDER THE CHARGE OF WILLIAM GARDNER.

Cutaneous Pigmentation in Relation to Diseases of the Female Sexual Organs.

MM. DALCHE AND FOUQUET. "Pigmentation Cutanées d'Origine Génitale. *La Gynécologie, Fév., 1903.*

The co-existence of gynæcological troubles and pigmentation of the skin, is not infrequent, the site of the cutaneous lesion usually being the face, as is so often seen in pregnant women. The backs of the hands and the fingers, especially around the joints, may also show discolouration.

They consist, as a rule, simply of hypercromation of the tissues, the colour varying from a yellowish circle surrounding the eyes of some women at the time of their periods to the dark brown or black of those affected with Addison's disease, more rarely the patches are bluish, deep red, ecchymosed or yellow.

Pressure produces no pallor of these patches, neither do they desquamate, nor are they irritable. Quanon, Neligon and others have asserted that the colouring matter transudes and may stain white linen if the patches are rubbed with it, but the authors have not observed this phenomenon.

A case is cited of a young woman, twenty-six years of age, who has been afflicted with these patches of discolouration. A retroversion of the uterus and an inflamed right Fallopian tube were found causing dysmenorrhœa and a mucous enteritis. On treating and relieving the displacement and inflammation, the dysmenorrhœa, enteritis and pigmentation were relieved. The pelvic conditions recurred several times, the recurrences being followed by cutaneous pigmentation and by dysmenorrhœa and enteritis, all of which conditions improved each time that the pelvic troubles were relieved.

Women of any age during the period of sexual activity may be thus affected and the duration of the pigmentation varies. In some, it appears just before each menstrual period and persists during the flow,

on the cessation of which it disappears. In others, it remains present during the remainder of the patient's life, becoming more marked during each period of pregnancy. In addition to the above varieties, which may be called physiological, many forms of ovarian and uterine disease are productive of similar subcutaneous deposits of pigment. These pathological deposits are chiefly characterized by their persistence, *i.e.*, once they appear they do not tend to vary in their intensity unless it is to become darker and more extensive.

The authors consider the cause of this condition to be some disturbance of the ovarian secretion.

The *treatment* may be either (*a*) local, attacking pigmentation itself, or (*b*) general, as where the active cause is sought for and removed. *Locally*, Besnier applies an ointment composed of equal parts of olive oil and vaseline at night, while one of carbonate of bismuth and kaolin of each 10 gramms and vaseline, 40 gramms is used in the morning and during the day.

Hagar uses a glycerol composed of

Precip. Alba
Bismuth Sub-nit, aa . . . . . 40 grs.
Glycerole d'Amidon . . . . . 15 "
applied daily.

Uterine Traumatism.

Brothers, Abram. "Accidental Perforation of the Uterus." *American Gynecology, April, 1903.*

The uterus is far more often perforated than is usually believed, cases not being reported on account of the fear of the operator, of ridicule or adverse criticism. Such accidents may end fatally, but this is rather the exception than the rule.

Eight cases are cited, of which four were seen in consultation and four occurred in the writer's own practice. Of the four consultation cases, three died. The perforation of the uterus of the patient who recovered took place through the anterior wall into the tissue between the bladder and uterus where an abscess formed and was subsequently emptied by operation.

In three of the cases which occurred in the writer's clinic, the accident was immediately discovered, the operation stopped and douching was omitted. All three recovered. Salpingectomy was carried out in the fourth case and the opening up of the peritoneal cavity for this purpose was taken advantage of to sew up the opening in the uterus with a perfect result.

Perforation of the uterus by the curette was recognized many years ago. Tait, in 1872, reported three cases of what he called "metro-peritoneal fistulas" due to this trouble.

Where such an accident has happened, the fact is recognized that the instrument has passed deeper than the previously estimated size of the uterus should allow. In such a case, the prognosis is good if operator, instruments and field of operation are aseptic and no further intra-uterine interference is attempted. If the operator had originally intended to open the abdomen for some other condition, this opportunity may be taken advantage of to suture up the opening, otherwise the patient may be returned to bed, having ice applied externally and a dose of opium administered.

Where irrigation of the uterine cavity (and therefore of the abdominal cavity) has taken place, one may have, (1) a mild local peritonitis with spontaneous recovery; (2) acute septic peritonitis requiring hysterectomy and vaginal drainage; or (3) localized abscesses may form and require evacuation.

Where not only perforation of the uterus, but a protrusion of the intestines through the opening has taken place, abdominal section must be done at once and the bowel treated by resection or not, as its condition indicates.

Vaporization of the Uterus.

Blacher, G. F. "The effects of Vaporization of the Uterus, etc." *Jour. of Gyn. and Obstet. of the British Empire, May, 1903.*

The specimen described was removed from a patient aged 47, fourteen days after atmaukosis and curetting, the scrapings showing evidence of carcinoma.

The uterus was slightly enlarged and a vertical section through the whole organ from before backwards reveals the fact that the cavity is divided into two parts, an upper and lower, the latter being about four times as long as the upper as well as having entirely lost its normal appearance.

The inner surface of the upper part is smooth and, for the inner 3 m.m., of a reddish-gray colour. No trace of mucous membrane can be seen, even with the aid of a microscope. Even the superficial muscular tissue shows but little affinity for the staining fluid.

In the lower part of the uterine body both mucosa and muscular tissue have been destroyed, the effect in one place extending to a depth of 5 m.m. from the surface.

The upper part of the cervical canal was affected in manner similar to the above.

After dilatation of the cervical canal, and curetting, steam at 120 degrees, down to finally 110 degrees C. was applied by means of a metallic cannula, which was introduced not quite up to the fundus, for 90 seconds.

One sees from this specimen that it is quite possible to utterly destroy by this process not only the epithelial lining of the uterus, but also a certain amount of submucous tissue as well and that, too, in such a manner as to prevent any possibility of the mucous membrane being regenerated.

It is also seen that not only does the steam itself produce necrosis, but that the heated cannula plays an important part, and this fact must be carefully taken into consideration in the employment of this method of treatment of intra-uterine disease.

Three Cases of Ruptured Uterus Successfully Treated by Tampons.

Töth. "Three cases of Ruptured Uterus Successfully Treated by Tampons." *Central f. Gyn., No. 6, 1903.*

(1) During this patient's ninth labour, the uterus ruptured and part of the fœtus escaped into the peritoneal cavity. It was delivered by traction on the feet and the placenta extracted by pulling on the cord. Intestine became prolapsed through the rent in the wall of the uterus, but was replaced and a tampon inserted into the uterine cavity, this being followed by complete recovery of the patient.

(2) The second patient was in labour with her eighth child and suddenly complained of most intense pain, the pulse going up to 124. Rupture of the uterus with escape of the head into the peritoneal cavity was diagnosed. The uterus was emptied and then tamponed, but eventually required removal. Patient recovered.

(3) A midwife delivered this woman of a macerated fœtus at the end of her eighth pregnancy, but thought that a twin had remained in the uterus. The "twin" was found to be the promontory of the sacrum which was felt through a tear in the uterine wall. The uterus was tamponed and the patient had an uninterrupted convalescence.

F. A. L. Lockhart.

Society Proceedings.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

Oct. 2, 1903.

W. S. Birkett, M.D., President, in the Chair.

This was the opening meeting of the Session of 1903-1904. The secretary read the annual report and it was adopted. The treasurer's report was deferred till the end of the financial year. The names of the following persons were proposed for temporary membership: Drs. A. G. McAulay, J. R. Goodall, W. W. Francis, J. D. Dixon, L. C. Harris,

J. M. McCulloch, Robert King, H. C. Church, A. L. Lynch, D. W. McKechnie, J. M. English, G. H. Turner, R. H. M. Hardisty. All of these are upon the staff of the Royal Victoria Hospital.

The following are the names of those who were re-elected officers for the ensuing year:—President, Dr. H. S. Birkett; vice-president, Dr. John A. McDonald; treasurer, Dr. Alfred T. Bazin; secretary, Dr. A. Mackenzie Forbes; trustees, Dr. F. J. Shepherd; Dr. James Perrigo, and Dr. James M. Jack.

The President read his annual address, and afterwards entertained the members with refreshments and music. The following is the text of the address:—

Allow me on behalf of those of my confreres associated with me in office, to express to you our sincere appreciation and thanks for the honour conferred upon us in having elected us to direct the affairs of this Society during the past session.

It is the duty of the president to communicate to the Society a statement of the work done during the past session and I, therefore, beg to read a few extracts from the reports of the secretary and chairman of the various committees:—

From the secretary we learn that there were twelve regular meetings held, at which there was an average attendance of forty members. We must bear in mind that this average whilst falling a fraction below that of the previous session, is due to the fact that the immediate past session was only six months instead of nine, owing to the recent change of the by-laws. At these twelve meetings ten papers and thirty-four case reports were read; sixteen living cases were presented and three pathological demonstrations given.

The number of names at present on the register is as follows:—

Resident members, 165; non-resident members, 3; temporary members, 27; honorary members, 1; total, 196. Three new names have been added to the list of resident members since January of this year.

The large number of living cases presented, and case reports read, is particularly noticeable, and this work has, I think, been largely instrumental in making the meetings of more than ordinary interest.

Several alterations have been made in the by-laws during the past session, and amongst those to which your attention is directed are the following:—The date of election of the officers has been changed from December to June, the object being to allow the incoming staff more time to deliberate over the work of the coming session, rather than to take up the reins of office in the midst of heavy work, without having had the opportunity of learning what methods have preceded and what might in the future be improved. Whether this method will prove successful you will have the opportunity of judging for yourselves.

Another change is, that the business of the Society is now referred to the council and after due consideration, is then presented to the Society, thus enabling it to devote more time to the medical and surgical work. Your council sincerely trusts that this change will prove a satisfactory means whereby the interest and work of the Society will be furthered.

The chairman of the library committee reports that the following journals are subscribed for:—

American Journal of Medical Sciences, Revuè de Médecine, Annales de Gynæcologie, The Practitioner, British Medical Journal, Deutsche Medicinische Wochenschrift. Several other journals are contributed through the kindness of Dr. Perrigo, Dr. James Bell and Dr. Armstrong, and the editors of the Montreal Medical Journal, whom we here desire to thank. The library committee desires to state that it it not responsible for the occasional non-appearance of journals not subscribed for.

The rooms committee has been most indefatigible in its labours, and, as a result has acquired, through the kindness of the Bank of Montreal, several much appreciated improvements to the rooms.

We have been promised portraits of some of our deceased presidents by the members of their families; the first to adorn the walls is that of the late Dr. Reddy. Those of the late Dr. Geo. W. Campbell, Dr. R. Palmer Howard and Dr. Geo. Ross, we are to have during the present session. We here take this opportunity of expressing our sincere appreciation of this kindness.

The programme committee has also been most active, and suggests that an invitation be occasionally extended to some well-known men of the profession, outside of the city of Montreal, to contribute a paper, thus adding interest and stimulation to our work. The first step in this direction was taken during the past session when Dr. Kinghorn of Saranac, N.Y., presented a most interesting paper, the result of which was that we had one of the largest attended meetings in the history of the Society, with one exception, that being the presentation of X-ray work on its first introduction to this city.

The report from the finance committee is not due until the first meeting in January, but a preliminary report shows a most satisfactory state of affairs.

In order to facilitate the carrying out of an evening's programme, the council begs to bring before you a suggestion, that all living cases to be presented should occupy the small rooms adjacent to the reading room, one room being reserved for males and the other for females; each patient to have the details of his or her case written out, and if such reports are handed in to the office by the afternoon of the day of

the meeting they will be typewritten, and this report placed beside each case. Living cases for examination must be in their rooms at 8.30 p.m., and those presenting them should likewise be punctual. Half an hour could then be spent with those cases and at nine o'clock, the patients having been dismissed, an adjournment would be made to the lecture room and the cases there discussed. On these same lines pathological specimens, with descriptive cards, could also be presented.

The result of such a plan would be a great saving of time and by 9.15 any paper or series of case reports could be read, discussed and the meeting closed by 10.15 p.m. The length to which some of our meetings are at times prolonged is recognized as a great drawback to success, and to further obviate this, punctuality on the part of our members is earnestly requested.

In looking over the work of this Society for many years back one is impressed with the fact that "the discussions have been confined to a very small proportion of the members present at any meeting." This is the dominant note of nearly every president in his remarks made at the close of each session. And it is so forcibly expressed in the remarks of one of them, Dr. Bell, that I do not hesitate to quote his remarks upon this subject, with which my own are so fully in accord: "This, I fear, is the weak point of the Society, and I trust the members will pardon me for calling attention to it. With every department of medicine represented on our programme as they have been, clinically and pathologically, medicine and surgery, gynæcology and obstetrics, ophthalmology, otology, and laryngology, and with such a wealth and variety of material presented, it seems strange that lack of discussion should be the feature of our meetings. I am sure that I voice the sentiment of the older members, and of those who have been the main contributors in the past, when I say that we would gladly see the younger members take a more prominent part in the preparation and discussion of the papers. Let it not be thought for a moment that here some are teachers and some are students; rather let it be understood that all are students and all may be teachers; that here we meet on common ground for mutual benefit and for the advancement of our profession. We have abundant facilities, let us have active professional work in the Society from every member, young and old. This is all that is needed to make our Society a great power in the land."

In conclusion, your officers desire to thank you for honouring us with re-election, and assure you that it will be our endeavour to further the interests of this Society to the best of our ability, and in this work we hope to receive your hearty co-operation, without which our efforts otherwise would fail.

THE

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THE NEURONES AND THE NEURONE CONCEPT CONSIDERED FROM THE ANATOMICAL, PHYSIOLOGICAL, PATHOLOGICAL AND PSYCHOLOGICAL POINT OF VIEW.

BY

WESLEY MILLS, M.A., M.D.,
Professor of Physiology, McGill University.

In all advances in science both men and methods must be considered. In some instances the man is of more importance ; in others, the method. In that evolution which has been wrought in neurology within the memory of the present generation, the methods seem to have been more important than the men. It is about twenty years since Golgi published his paper on his new method of nerve staining, which attracted but little attention till he again appeared on the scene about twelve years later. That method has probably been most successfully applied by Ramón y Cajal, of Madrid, who has made greater conquests through it than any one else, not excepting Golgi himself. It may be termed appropriately a Chrome-Osmic-Silver method, as Bichromate of Potash, Osmic Acid and Nitrate of Silver are the reagents used, the result being that the nerve elements are stained a dense black. This method brings out the processes of the cell more effectually than perhaps any other.

In the case of the *intra vitam* Methylene Blue method of Ehrlich, a strong solution of Methylene Blue is injected beneath the skin, into the cavities of the body, or into the blood vessels at short intervals till the animal succumbs. Then by the use of subsequent processes, too detailed to be mentioned on this occasion, a blue staining of the nerve cell results, in consequence of which the axis cylinder and its branches, the ends of the axone, or end-organ, and the nuclei of the cells come out in a beautiful blue colour in the most successful preparations.

One of the most important means for tracing out nerve tracts is known as the Weigert-Pal method. After fixation of the nervous tissues in bichromate of potash and sectioning, there follows staining with hæmatoxylin with differentiation in a special manner, which may be compared to a sort of bleaching process. This is especially adapted for staining

From a Lecture delivered before the Montreal Medico-Chirurgical Society, illustrated by lantern slides, Nov. 19th, 1903.

the medullary sheath of nerve fibres; and by virtue of this Flechsig was able to trace the various nerve tracts in the brain and spinal cord of the incompletely developed young animal. Of course in nerve degeneration when the myelin of the nerve fibres has disappeared, the degenerated region is marked out simply by absence of staining.

In like manner by the Marchi method the medullary sheath of degenerated nerve fibres is demarcated by a black staining, by the use of osmic acid, after the tissue has been first fixed in bichromate of potash. Of course such a method is inapplicable after degeneration is so complete that the myelin has been wholly absorbed. The Marchi method has proved of great value in marking out nerve tracts as in the nature of things degeneration must follow the lines of physiologically related neurones.

All the methods thus far referred to possess the great advantage over staining with ordinary dyes, that the processes of the nerve cells are to an infinitely greater extent brought into view. Nevertheless in all cases the minute structure of the body of the cell is more perfectly delineated by staining with anilin and other dyes.

One method which has proved of great practical importance is that of Nissl, which is a form of methylene blue staining, and a modification of which, useful for certain purposes, has been devised by Held. By the Nissl method certain constituents of the cell body are precipitated or fixed in more or less definite forms known as Nissl's bodies, or tigroid masses.

It will be seen from the above brief account that each method has its own special excellencies and limitations, and it is only by the use of all these and other methods of less importance, that justice can be done by means of the technique of the present day. It will be my object this evening to show, in necessarily a very imperfect manner considering the brief time at my disposal, some of the fruits of these most modern methods. In other words, I propose to outline the meaning of the expression "Neurone Concept," and to indicate its significance for Anatomy, Physiology, Pathology and Psychology, by a few illustrations; an attempt which, at the best, must be a mere sketch, but sufficient, I hope, to warrant the belief that the neurone concept had done for neurology what the doctrine of evolution has accomplished for biology.

It is now twelve years since Waldeyer, the great Berlin anatomist, presented a clear statement of what was implied by this doctrine. He held that the latest researches justified the opinion that the nerve units throughout the nerve centres were anatomically independent though physiologically related. It was believed that one nerve unit, nerve cell, or neurone, came in contact with another through its processes, but that these did not actually unite anatomically. In other words he set forth the doctrine of *contact* as opposed to the doctrine of *concrescence*.

I shall now proceed to show what is the real significance of this concept by a series of illustrations, without which it would be practically hopeless for any one to attempt to follow what I have to say. The illustrations which I am about to use are derived from a great many original sources, but the large proportion of them are to be found in Barker's magnificent book on the nervous system, and it is with no little pride and pleasure that I refer to the fact that this work has made a profonnd impression on the leading neurologists of Europe as well as America.

FIG. I. Diagrammatic representation of a motor neurone of the lower level. The cell-body together with the protoplasmic processes, its axis cylinder process or axone, side branches or collaterals, and end ramifications, all belong to a single cell or neurone; a.h., axone hillock devoid of Nissl bodies and showing fibrillæ; ax, axis cylinder or axone; at m it becomes surrounded with myelin and the outermost sheath or the neurilemma, which is probably formed from the mesoblastic layer of the embryo; c, cytoplasm showing tigroid bodies in the ground substance; d, protoplasmic processes or dendrites containing Nissl bodies; n, nucleus; n′, nucleolus; n.R, node of Ranvier; s.f, side fibril; n of n, nucleus of the neurilemma; tel, the motor end plate or telodendrion; m, striped muscle fibre; s.L, segmentation of Lautermann.

Figure 1 is diagrammatic and is meant to show practically every part of a neurone. One recognizes a *cell-body* with a *nucleus* and *nucleolus*, both of which are very distinct, and a large number of branching processes known by various names. The Germans with much appropriateness term them, *protoplasmic processes*, as they are evidently mere extensions of the material of the cell body; by English writers they are more frequently termed *dendrons* or *dendrites*. Passing off either from the cell body, which has been termed a *perikaryon*, or from the base of one of the dendrites one sees a single long arm of the cell termed its *axone* and ending in this instance in a very complicated modification of its axis cylinder known as *muscle plate* when it terminates as here in a muscle; but when the axone ends in a multitude of branches which may come in contact with similar branching ends in another neurone, such an anatomical complex is spoken of as an *arborization*, *telodendrion* or *synapse*. At the beginning the axis cylinder of the axone may be absolutely naked, but further from the cell body it is usually covered with a coat of myelin, known as the *medullary sheath*. In the nerve centres these two alone and their branches constitute the axone, but outside the nerve centres, that is to say, constituting the nerve fibre, the axone may be provided with a third covering known as the *neurilemma*. Both when naked and after it is covered with this myelin sheath the axone may give off side branches termed *collaterals* and which are of great physiological importance. Such a result as that represented in Figure 1 cannot be achieved by any one techni-

cal method, but it may be said to represent the generalised outcome of all of them.

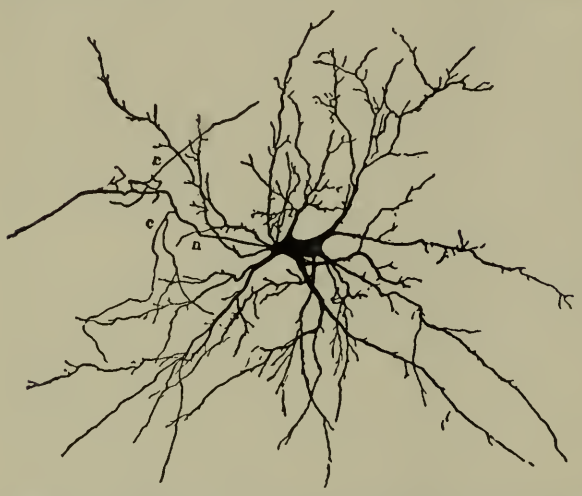


FIG. 2. Golgi cell of type I. Neurone from the optic tract of the cat (after Kölliker). The dendrites are very numerous with broad spreading branches ; the axis cylinder in this case branches but moderately ; c, indicates where the collaterals come off.

Figure 2. Represents what is known as a Type I. Golgi cell or neurone, in which the dendrites are much more prominent than the axone.

The reverse of this is seen in the Type II. cell of Golgi, represented in Figure 3, in which it may be observed that the axone is very much branched. The little projections on the dendrites known as *gemmules* or *thorns* are very well seen in cells of the cerebral cortex and can be better explained later.

Figure 4. Shows how amazingly complex a arborization of the single axone may be as in this case of a Purkinje cell of the cerebellum.

These three illustrations represent admirably the great advances made through the use of the Golgi method in displaying the complexity of the processes of the neurone.

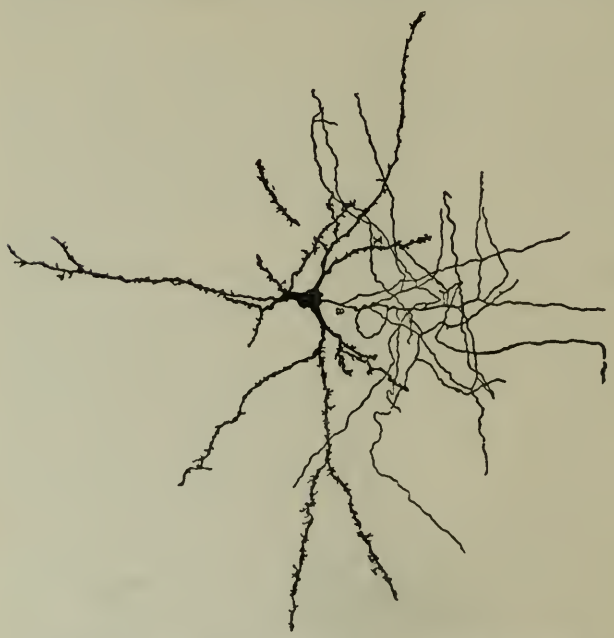


FIG. 3. Golgi cell of type II. From the cerebrum of a cat (after Kölliker). In this case the axis cylinder a is very greatly branched while the dendrites are represented by the coarse processes which are covered with "thorns" or "gemmules."

Figure 5 will serve to illustrate the real nature of the nerve tract on the one hand and collaterals and arborizations on the other. The fibres proceeding upwards represent the axones of neurones of the spinal ganglia, which axones form the posterior columns of the spinal cord ; while given off from either the upper or the lower branch into which the axone divides after it enters the cord, are the collaterals, i.e., side branches, which in turn may aborize around the dendrites of axones whose cell bodies are in the grey matter of the cord. Thus it wil

be seen that a single neurone may make connection with a large number of other neurones, a fact which it is obvious must be of great physiological and possibly also psychological importance.

FIG. 4. An axone with a greatly branched axis cylinder pr. cyl. (after Van Gehuchten).

Figure 6 shows how abundant the branches of axones may be which surround a single cell body, making in this case what is termed a *basket*.

In figure 7, the neurones are represented in different stages of development. In the portion on the left hand which depicts the spinal cord in a chick on the third day of incubation, we may notice cells in process of great activity (*mitosis*) and others (*neuroblasts*) that are in a somewhat later stage of development which is carried still further in what is shown on the right representing a chick embryo two days older.

Figure 8 is a truthful representation of an unusually happy transverse section of the spinal cord in an early chick embryo. Outside the cord one sees the spinal ganglia on each side; one set of axones proceeding towards the cord as the posterior root, the other outwards and joining with the anterior root to form the mixed nerve. Within the cord terminal arborizations are abundantly present. The motor neurones of the anterior horns are sending out their axones to form the anterior root which being continued, constitutes the motor nerve, or the motor portion of the mixed nerve. All the facts go to show that the cell body is the trophic or nutritive centre of the whole neurone; hence it follows that if an anterior root be divided, degeneration is towards the periphery and constitutes *secondary* or Wallerian degeneration. If the section be made in an afferent or sensory neurone on either side of the cell-body, degeneration follows beyond the point of section, so that what could not be adequately explained at all a comparatively few years ago is now so simple that no effort is required to remember the ordinary laws of degeneration

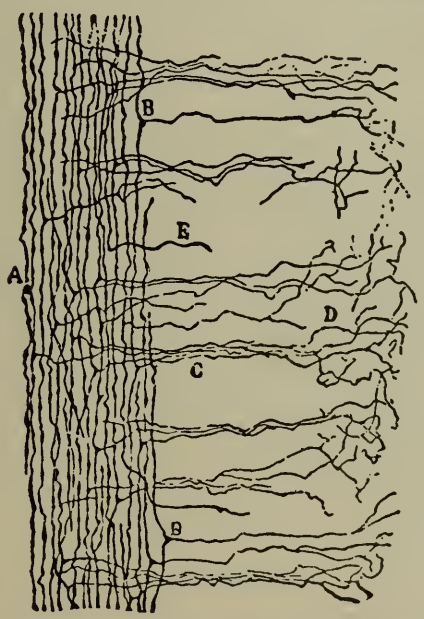


FIG. 5. A longitudinal sagittal section of the posterior column of the spinal cord of cat 15 days old (after Ramón y Cajal) by the Golgi method. A, nerve fibres or axones of posterior column; B, collaterals; C, groups of collaterals running towards the grey matter; D, end arborizations of collaterals in the dorsal horn; E, axis cylinder of a neurone.

From the same illustration the anatomical basis of reflex action can be readily understood. It is only necessary to have one sensory neurone arborising, as represented in this figure, around a single motor neurone to complete the circuit, for the sensory axone begins in the periphery, as for example, the skin, while the motor ends in a muscle. Nothing can be simpler, and if, as some believe, a third subordinate neurone, is interposed between the arborisation of the afferent axone and the dendrites of the motor neurone, there is still no great complexity in the concept.

FIG. 6. Arborizations forming a basket or basket-work about two Purkinje cells of the cerebellar cortex. (From Schäfer after Ramôn y Cajal). a, axone; b. basket-work.

Figure 9 is a very old one, because what is there represented can be seen by simply teasing up with needles a small piece of degenerated nerve. It does, however, represent very well two stages in the process of Wallerian degeneration. On the left we have represented a normal nerve fibre; in the middle, one in which the medullary sheath has been converted into fat which has run together in masses; and in the third a portion of this fat has been absorbed. At a later stage, though not represented here, the axis cylinder and even the outermost sheath would also disappear.

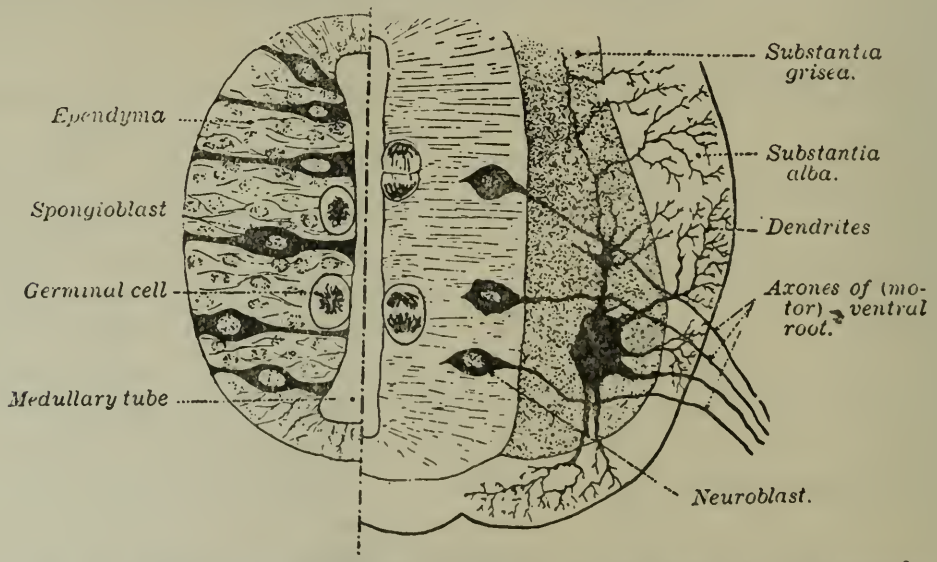


FIG. 7. A transverse section of the spinal cord of the chick. Right side, from a five day chick; left side from a two day chick (after J. Kollmann).

In figure 10 we get an illustration of the results of the use of the Marchi method; a series of transverse sections from successive segments of the spinal cord, from the 7th thoracic to the 5th sacral, being represented. It will be noticed that certain regions of the sections are marked off

by black dots owing to staining of the medullary sheaths by osmic acid, as formerly described. In consequence of a transverse lesion, degeneration is shown to have taken place in the *direct* and *crossed pyramidal tracts*, more especially, on each side, so that it must be apparent that the Marchi method is one of the best known for determining the extent of degeneration of nerve tracts in consequence of a lesion above or below a certain point. Of course when degeneration is complete and the myelin has been absorbed, it is impossible to apply such a method. In such cases, however, the Weigert-Pal technique would reveal the presence of old degenerated areas by the absence of staining. There is, besides Wallerian degeneration another which was not known to us till a few years ago.

It has been shown by numerous observers that after section of the nerve there is not only peripheral degeneration, but important changes in the body of the neurone itself. This form of alteration has been termed *primary degeneration*, a good example of which is represented by Figure 11. On the right is seen a fairly normal multipolar neurone of the nucleus of the oculomotorius nerve; on the left another from the same nucleus, showing the results thirteen days after the operation — section of the oculomotorius nerve on one side. It will be readily observed that the orderly arrangement of the Nissl bodies has been greatly disturbed; that many of them have entirely disappeared, and that the nucleus is eccentric in position.

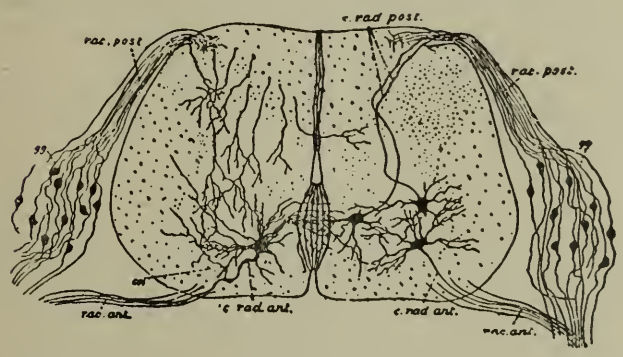


FIG. 8. Transverse section of the cord of a chick embryo (after Van Gehuchten). c, rad. ant., cells giving rise to axones of ventral roots; c, rad. post., cells whose azones give rise to dorsal roots; col., collateral passing from azone of cell of the ventral horn back into the grey matter; gg, the cells of spinal ganglia; rac. post., dorsal root fibres; rac. ant., ventral root fibres.

There has been a good deal of discussion as to the nature of these Nissl bodies. There seems to be little doubt that in the fresh uninjured cell or neurone they are not to be seen, but that they arise as a result of treatment with reagents They, however, represent material that in the fresh cell is in solution and which is probably of the nature of a nucleoproteid. It has been suggested by Held that they represent reserve material on which the cell can draw during activity. At all events, their study is of practical importance, for they are destroyed by numerous body poisons, elevation of temperature and during prolonged anæsthesia, it is said. Very interesting to the physiologist is the fact that section of the posterior roots leads to degeneration of this character in the neurones of the anterior horn of the spinal cord. It would seem that the

life of the ganglion cells of the anterior horn is in a certain degree dependent on the integrity of the corresponding afferent neurones, which influence them in some way.

So long as the nucleus has not escaped from the cell-body there is some hope for the neurone, so that in this case the cell is not necessarily doomed as is the nerve fibre beyond the point of section. Of course degeneration may sometimes go on to the actual death of a large proportion of the cells in any nucleus.

Figure 12 illustrates this. On the left one may see a representation of a normal lateral geniculate body; on the right the cell bodies are atrophic, or have entirely disappeared in consequence of an extensive lesion in the temporal and occipital lobes of the corresponding side.

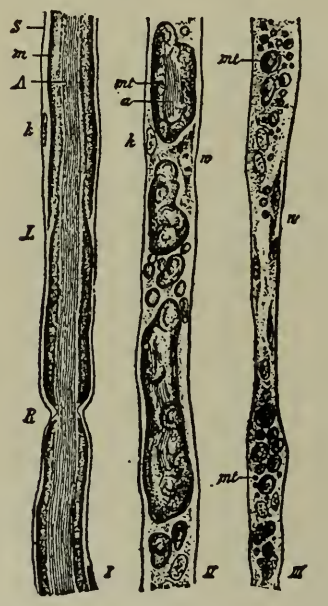


FIG. 9. Wallerian or secondary degeneration of nerve fibres after section. i, normal nerve fibre; ii and iii, fibres showing different degrees of degeneration; S, neurilemma; m, medullary sheath; A, axone; k, nucleus of neurilemma cell; L, marking of Lautermann; R. node of Ranvier; mt. drops of myelin; a, remains of axone; w, proliferating cells of neurilemma. Somewhat schematic (after Thoma).

Turning again to normal anatomy and physiology it is clear that by means of these recent investigations on the neurones, we have been able to get a truer classification of nerves and a juster conception of brain nuclei.

An examination of Figure 13, which is a schematic representation of the trigeminus nerve, shows that it is not essentially different in its sensory part from an ordinary spinal afferent nerve. The Casserion ganglion corresponds to the spinal ganglion, but of course here represents really an aggregation of three ganglia. Its afferent axones pass inwards as do the posterior roots of the spinal nerve and, as in the last case, divide each into two branches which arborise around a new set of neurone bodies, constituting a form of grey matter known as *substantia gelatinosa*. Such a centre is plainly very different from an ordinary *motor nucleus*. The former may be designated a nucleus of termination, the latter a nucleus of beginning. The motor portion of the 5th nerve represented in this figure springs from an ordinary collection of motor ganglion cells such as one finds in the anterior horns of the spinal cord, while its axones form an ordinary motor nerve answering exactly to a motor nerve of the spinal region. Sometimes, as in the case of the vagus nerve, the ganglion may be some little distance down on the trunk and the cell bodies therein of a form corresponding to that in the spinal ganglia of the immature animal; that is to say, bipolar.

In Figure 14, a number of interesting relations are diagrammatically represented in a form necessary to the neurone concept. On the right

an afferent or sensory neurone is seen terminating in the skin ; its cell body is in a spinal ganglion ; the other axone passes into the white matter of the posterior columns and divides into two branches, each of which sends off collaterals. Then one main branch passes downwards, and the other and much longer one, upwards—in fact the latter may

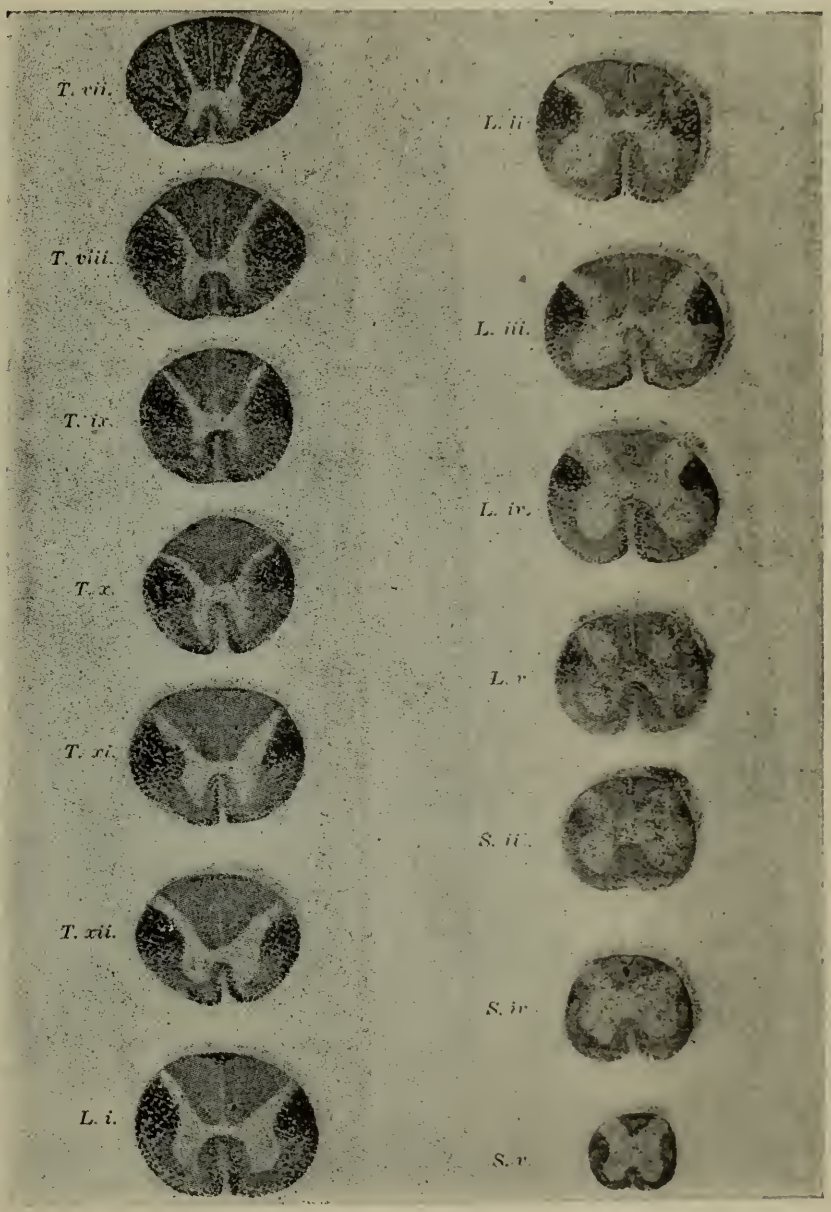


FIG. 10. Represents a series of transverse sections of the spinal cord at different levels and showing by the black dots the site of degeneration as marked out by the method of Marchi (after A. Hoche).

reach to the very top of the cord where the second neurone begins in the nuclei of Goll and Burdach. A series of such axones have manifestly the same physiological function and running together constitute a spinal *tract*, the posterior branches of the neurones constituting the *comma tract* of Schultze and the upper ones the columns of Goll and

FIG. 11. Cells from the nuclei of the oculomotorius nerves of the cat thirteen days after section of the root fibres of the nerve on one side (after E. Flatau). a, cell from the nucleus of side not operated on showing normal arrangement of Nissl bodies; b, cell from the nucleus of the side operated on. The eccentric position of the nucleus and the disappearance and dust-like destruction of Nissl bodies are evident, illustrating "primary degeneration."

Burdach. Hence after section of the posterior roots or pathological changes in the cell-bodies of the spinal ganglia, one would expect ascending degeneration in the posterior spinal tracts of Goll and Burdach and descending degeneration in the "comma" tract. The afferent impulses after reaching the upper dorsal nuclei pass on to the neurones which begin in these nuclei through arborisations of the first neurone around the dendrites of the neurones of the nuclei of Goll and Burdach and so proceed to the optic thalamus, and by a third neurone to the cerebral cortex; or possibly, as represented in the figure, by a second neurone only, and thus reach the cortex of the cerebrum. It must follow that sensory impulses reach the cortex of the cerebrum by a series of relays of neurones, and in all likelihood at least three are in most cases required. On the other hand, as may be seen, a motor impulse commencing in the cortex is carried down and out to the muscle by two neurones; and the first, which begins in the grey matter of the cortex, arborises around the dendrites of the second neurone, which is located in the anterior horn of the spinal

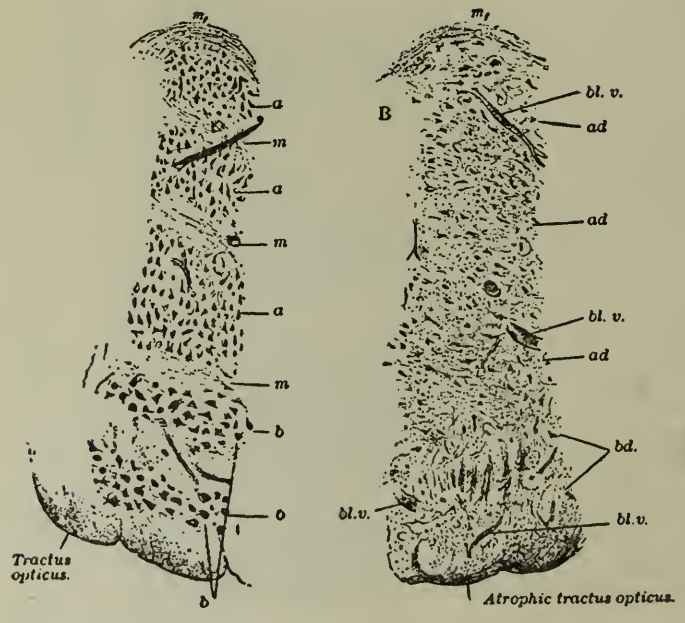


FIG. 12. Corpus geniculatum laterale; normal on the left, degenerated on the right after an extensive lesion in the temporal and occipital lobe of the corresponding side. a, mass of small ganglion cells arranged in layers, shown atrophic in B; m, Medullated layers, atrophic in B; b, masses of large cells; to., optic tract; m'. dorsal white capsule; at a d, in Fig. B, loss of ganglion cells is represented; at b d, total degeneration of the large cells. The optic tract is atrophic in B. (after C. von Monakow).

cord. Thus for a motor impulse only two principal neurones are required from its beginning till it reaches the muscle concerned.

Neurologists frequently speak of neurones of the upper level and neurones of the lower level, which can be understood from Figure 14. It is also easy to see from the same illustration why lesion of upper neurones does not give rise to degenerative paralysis, for, according to the neurone doctrine, the two essential neurones of a motor tract are independent of each other. It can also be understood from this figure how sensory and motor neurones may come into close relationship in the cortex cerebri, so that on purely anatomical grounds a *sensori-motor* cortical region is comprehensible.

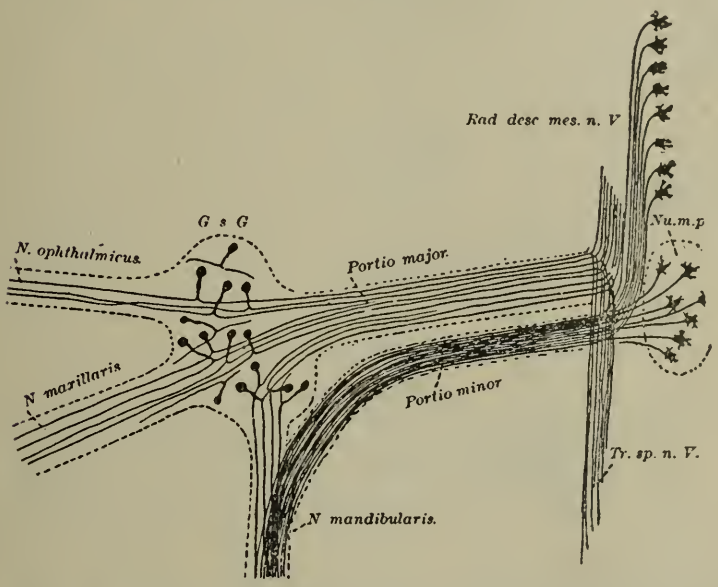


FIG. 13. Diagram showing the motor and sensory neurones, the axones of which enter into the formation of the trigeminal nerve (after Van Gehuchten). g. s. g., semilunar, ganglion of Gasserius; Nu. m. m. n. V., Nuclei motorii minores nervi trigemini; Nu. m. pr. n. V., nucleus motorius princeps nervi trigemini; Rad. desc. mes. n. V., radix descendens nervi trigemini; Tr. sp. n. V., tractus spinalis nervi trigemini.

By the help of this most modern technique we have been the better enabled to realize what a wonderful sensory organ or combination of organs is the skin. Fig. 15, for example, illustrates the application of the Golgi method to sections of skin, from which it can be learned how extremely numerous are the nerve branches distributed to even a small area of the cutaneous surface. Further it will be observed that nerves are abundantly supplied to the hair bulbs, enabling us to understand why touching hairs gives rise so readily to cutaneous sensations, and why the " whiskers " of the carnivora can serve such a good purpose, especially in the dark. In revealing the extent of the exact structure of the various modifications of the axone known as sensory *end-organs*, the methylene blue method has probably served a better purpose than any other.

In figure 16 we have a representation of the nerves ending in heart muscle. It was formerly considered probable that every skeletal muscle fibre was supplied with a small branch of nerve, and actual observation by the methylene blue method and also with the Golgi method would seem to lend the support of actual observation to an old suggestion; and from very prolonged observations on the nerve supply to the hearts of various

cold-blooded animals I should be disposed myself to believe that we would be justified in holding a similar view for the heart muscle. The so-called *ganglia* of the heart are, of course, as in the case of the intestine, really neurones.

In Figure 17 we have an illustration of a form of end-organ known as a *muscle spindle* and which is seen to be highly complicated, the modifications of the axis cylinder of the nerve fibres passing in and out around the muscle fibres. Owing to recent researches on the physiology of movement, especially those of Sherrington, it has been shown that the contraction of one muscle is associated with the relaxation of its antagonist. This can only be understood as a result of reflex action, so that a movement is in a sense self-regulative; that is to say, owing to afferent nervous impulses started in all probability in these muscle spindles or other similar end-organs, inhibitory influences are originated in the centres which causes a relaxation of the antagonist muscles. It has further been demonstrated that several forms of end-organ are to be found in tendons, and there can be no question that the sensory impressions arising in joints have a very important influence in determining the character of any movement, so that in these considerations we see how anatomy and physiology unite to help us to a better comprehension of the phenomena.

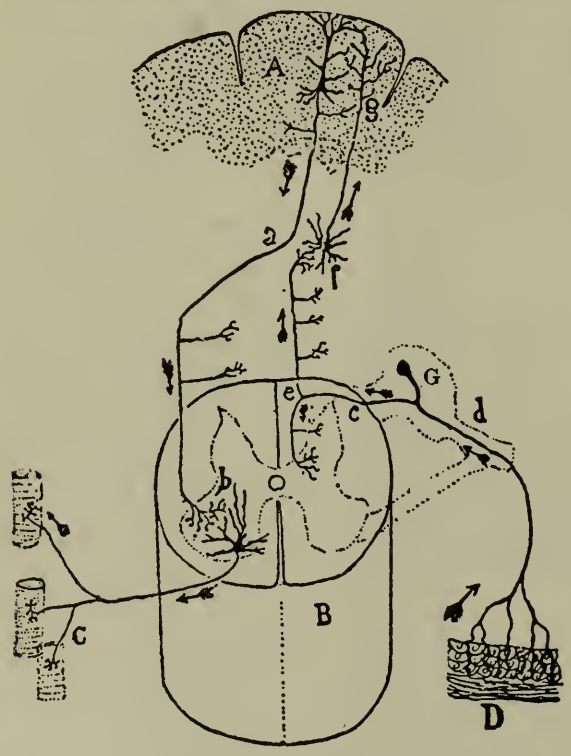


FIG. 14. Diagrammatic representation of the relations of certain neurones illustrating nervous conduction within the brain and spinal cord. Sensory neurone whose body is found in the spinal ganglion, G, extends by its axones on the one hand into the skin, D, on the other into the spinal cord, B; d, indicating the peripheral axone, c, the central, which at e divides into an ascending and descending branch, the former of which arborises at f around the dendrites of the secondary neurone. These together, according to this diagram, give the entire path of sensory impulses from the surface to the termination in the cortex. On the left hand side we have the first or upper level neurone, represented at A, in the cerebral cortex, its axone a, extending downward and crossing the middle line (pyramidal decussation) giving off collaterals by the way and finally arborizing at b around the dendrites of the lower level neurone in the anterior horn of the cord, the axone of which is distributed to muscle fibres C. Throughout the figure the arrows indicate the paths of the impulses (after Ramón y Cajal).

To illustrate further how the revelations of this technique have brought anatomy and physiology into closer and more useful relationship, I pro-

ceed to give additional examples. Turning to the senses, in Figure 18 we may see how the first neurones, which begin in the mucous membrane of the nose, meet by arborizations of their axones the branching dendrites of the mitral cells forming the so-called *glomeruli* of the olfactory lobe, while the axones of these second neurones that is the mitral cells, passing inwards constitute the olfactory tract.

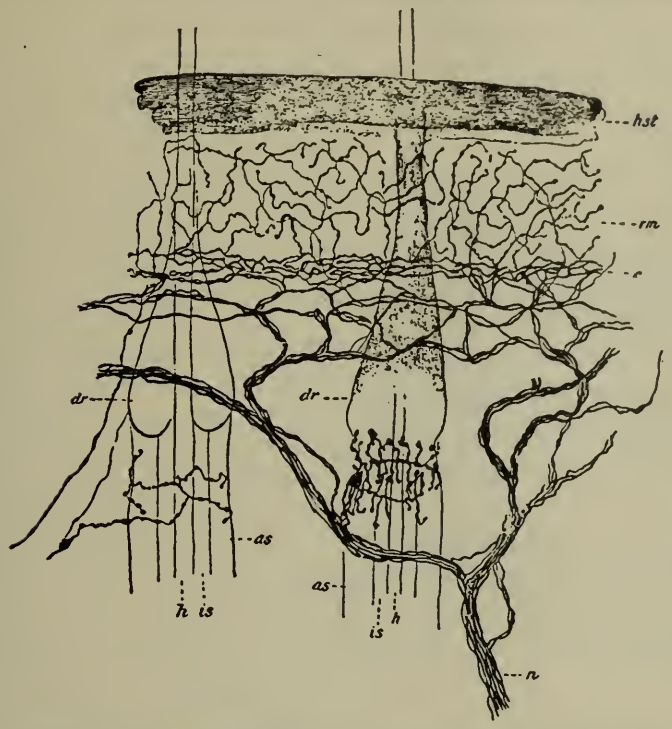


FIG. 15. Nerves and nerve endings in the skin and hair follicles (after G. Retzius). hst., stratum corneum; rm., stratum Malpighii; c, most superficial plexus of nerve fibres in the cutis; n, cutaneous nerve; i s, inner root sheath of hair; a s, outer root sheath; h, hair itself; d r, sebaceous glands.

Turning now to Figure 19 one notes the relationship of the retina to the visual centres. All representations of the retina as depicted by the old methods failed to enable us to understand how the impulses passed from the rods and cones to the optic nerve. It will be seen from Figure 20 that the rods and cones are simply specialized nucleated cells and constitute in the most limited sense the end-organ of vision. The impulses beginning in them were carried by their arborizations into others of the intermediate cells and thence to the neurones of the ganglionic layer whose axones constitute the optic nerve which terminates in the primary centres of vision, that is to say, in the external geniculate body, the corpora quadrigemina, etc., whence by another neurone the cerebral cortex of the occipital lobe is reached. An inspection of this illustration will show that there is no longer any difficulty in understanding the significance of the molecular and nuclear layers. In the former case we had simply the cut ends of the arborizations represented, and in the latter the nuclei of the intermediate cells.

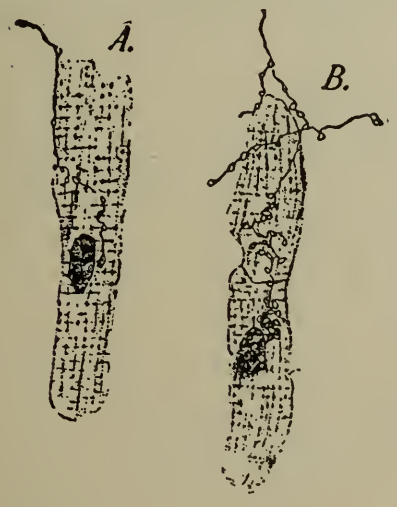


FIG. 16. View of cardiac muscle cells with their nerve endings by the methelene blue method (after G. C. Huber and Lydia DeWitt).

Prior to the investigation of the path of hearing by the newer methods, especially the Golgi method, we had no really clear notion of the nature of the auditory centres, but from Figures 22 and 23 it can be seen that these are really centres corresponding to the primary centres of vision ; in fact that, just as the neurones terminate in the case of vision chiefly in the anterior quadrigeminum, so in the case of hearing do they terminate in the posterior corpus quadrigeminum. And the fact that these two sensory processes are brought into anatomical relationship in neighbouring nuclei, and indeed the same nucleus enables us to understand how an auditory impulse may give rise to a visual phenomenon, as a movement of the eyes, often to be noticed when we unexpectedly hear a loud sound. In the case of hearing the body of the first neurone is really in the cochlear nucleus of the ear and its axones constitute the auditory nerve which is now known to be in reality anatomically and physiologically distinct from the vestibular nerve. All the essential facts of the physiology of the senses can at the present time be given an anatomical basis which makes the whole at once broader, truer and in every way more satisfactory.

Fig 17. Muscle spindle in instrinsic plantar muscles of a dog showing how the axis cylinder spreads among the muscle fibres forming by its modifications the essential part of a muscle spindle ; sy. n., sympathetic vaso motor nerve.

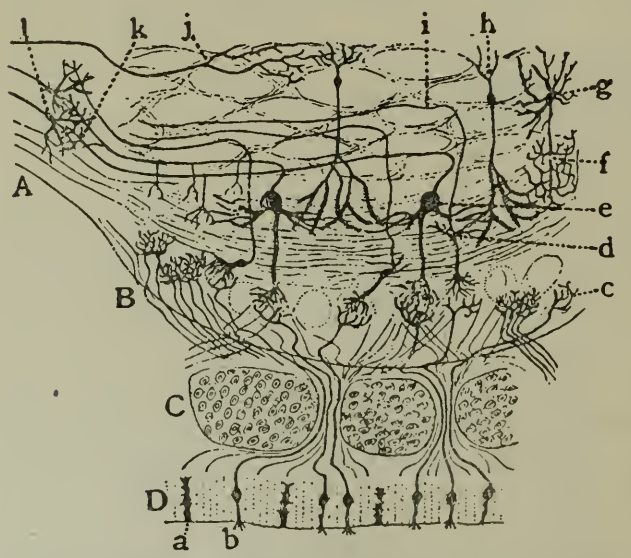


Fig. 18. Diagramatic representation of the olfactory nervous mechanism of the mammal. A, olfactory lobe ; B, olfactory bulb ; C, cartilage of the cribriform plate ; D, nasal mucosa : a, supporting cell ; b, peripheral olfactory neurone ; c, arborization of the olfactory neurone in the glomerulus of the olfactory bulb ; d, small nerve cell ; e, mitral cell ; h, "granule" ; g, large stellate cell with short axone ; j, arborization of axones of central origin (after Ramón y Cajal).

To apply the technique of the Weigert-Pal method one finds that such a result as that shown in Figure 21 makes a subject clear which has been a great bug-bear to medical students who endeavour to understand the *fillet*. In this illustration of a cross section of the first part of the posterior region of the bulb, one sees, not the motor decussation which is much better understood, but the *sensory decussation* or

decussation of the fillet, which is somewhat superior and anterior to the other. It may be noted that fibres are proceeding from the nuclei of Goll and Burdach and crossing to pass forward to constitute the fillet; in other words, we have here represented the secondary neurones of the sensory tract which began in the nuclei above mentioned and around the

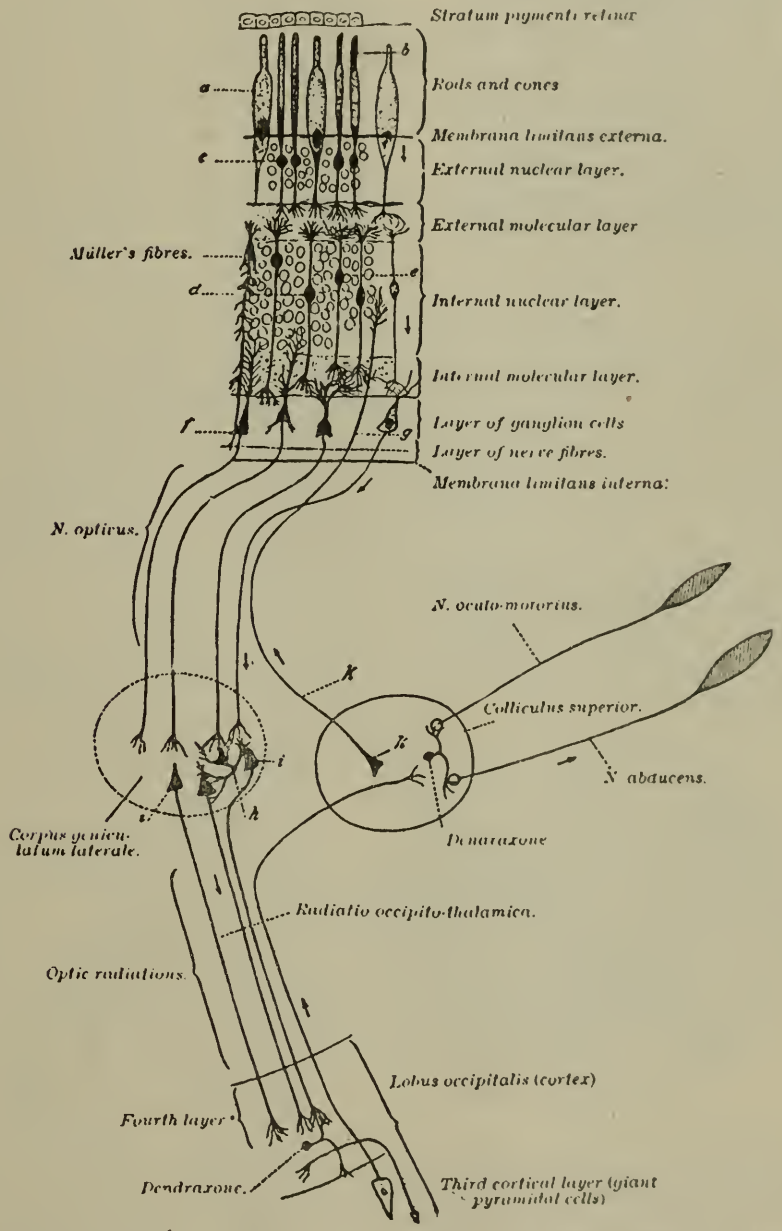


FIG. 19. Schema of the visual conducting paths (after C. von Monakow). The arrows in the figure indicate the direction of the nervous impulses.

cell-bodies of which the axones of the posterior column of the cord arborise. By the Weigert-Pal method all medullated axones are stained dark, hence the decussation is well brought out in the illustration under consideration. It must follow then that the fillet carries on the sensory impulses which reach it by the first afferent neurone.

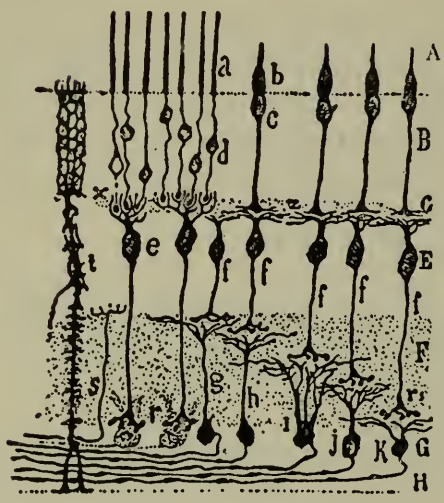


FIG. 20. Schematic representation of the structure of the retina (after Ramón y Cajal). A, layer of rods and cones; B, bodies of visual cells (external nuclear layer); C, external plexiform layer; E, layer of bipolar cells (internal nuclear layer); F, internal plexiform layer; G, layer of ganglion cells; H, layer of nerve fibres. a, rods; b, cones; e and f, bipolar cells; r, lower branches of bipolar cells; g. h. i. k., ganglion cells branching in different layers of the internal plexiform zone; x, contact between rods of the bipolar cells; z, contact between cones of the bipolar cells; t, Müller's cells; s, centrifugal nerve fibre.

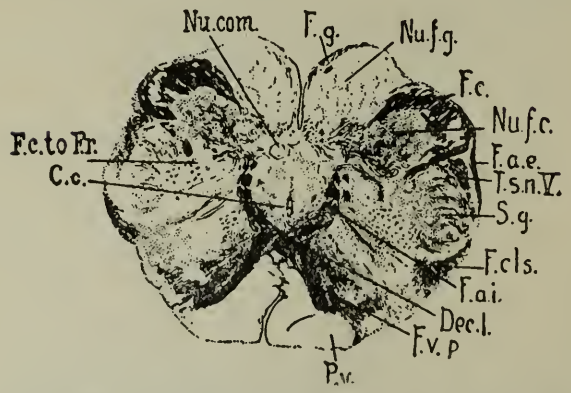
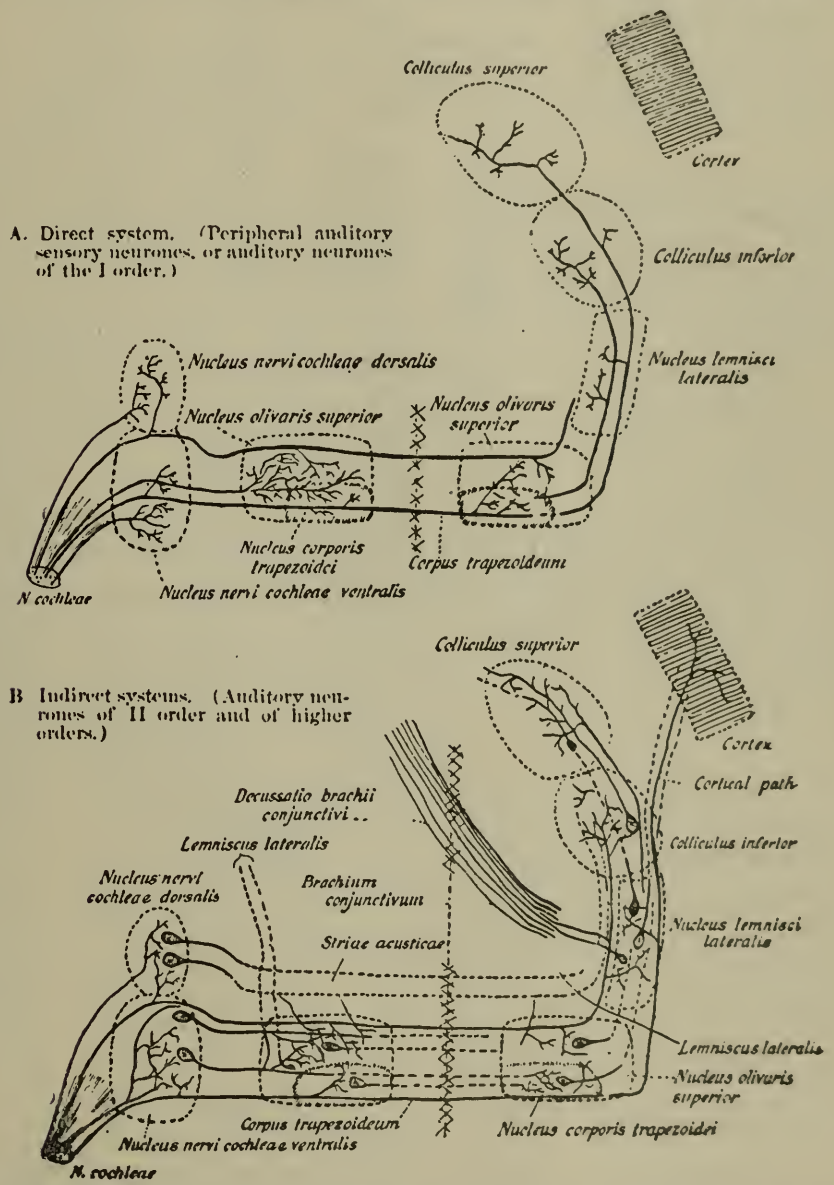


FIG. 21. Transverse section through bulb (medulla oblongata) of new born child at level of decussation of fillet (lemniscus). C.c., central canal; dec. l., decussation of lemniscus; F. a. i., internal arcuate fibres; F. a. e., external arcuate fibres; F. c., cunlate facsiulus of Burdach; F. c. t. F. r., fibres from cuneate fasciculus to reticulate formation; F. cls., direct cerebellar tract; F. g., fasiculus gracilis of Goll; F. v. p., ventralis proprius; Nu. com., commissural nucleus; Nu. f. c., cuneate and gracile bundles; Nu. f. g., nucleus of the gracile funiculus; Py., pyramid; T. s. n. N., the spinal tract of the trigeminal nerve; S. g. substantia gelatinosa (Barker and Hewetson, the Weigert-Pal method).

We may learn from a comparison of Figures 24 and 25 how great an advance is the Golgi method upon that of staining with ordinary dyes. Figure 24 represents well enough the bodies of the neurones of the cerebral cortex and their arrangement in layers; but little is learned of that complexity which really exists as indicated in Figure 25, which is a somewhat diagrammatic representation of the results of the application of the Golgi method.

All investigators do not believe in the neurone concept as stated originally by Waldeyer. On the contrary, some, especially Bethe, Apáthy, Held, and others, subscribe to the doctrine of concrescence as opposed to that of mere contact. This doctrine is, in the opinion of Held, from whose writings I have taken several illustrations, warranted by the facts of the case as shown in Figures 26, 27, 28, which are themselves further explained by Figures 29 and 30. To begin with Figure 29 we have here an explanation, in the opinion of Held and others, of the *gemmules* to be found on the dendrites and shown, not only in this illustration, but also in Figure 3. This author, with many others, believes that the gemmules are the result of the imperfect staining of the connections with one set of dendrites by the processes, it may be, of others or of axones. In both Figures 29 and 30 we seem to have authorization for this explanation. Held and some other investigators are of opinion that the *net-works*, shown to a greater or less extent in all

the above illustrations, not only surround the cell body, but actually penetrate it. If we acknowledge that these are natural and not *artifacts*, the result of our technical methods of treatment, there seems to be no escape from this conclusion; moreover, Bethe and Apáthy think that conduction in the nervous system is through *neuro-fibrils* which are in



FIGS. 22 and 23. Diagrammatic representation of the arrangement of the axones of the cochlear nerve, etc., in the central nervous system, etc. (after H. Held).

so far independent of the bodies of the axones that even reflex action can be brought about independently of the ganglion cell-bodies.

It would probably be premature to adopt this conclusion, nevertheless, one must admit that the neurone concept in its original form can scarcely be accepted as expressing the whole truth at the present time. But even though this be true, the conquests won through these methods and for-

mulated by this doctrine are none the less real and admirable. A "neurone" is to-day to those who thoroughly understand the nervous system in the light of this concept, an altogether different thing from the "nerve cell" of twenty years ago; and probably the ground thus gained will not be lost to future generations of investigators.

The psychological implications of the neurone doctrine constitute a large and tempting field. Reflexes alone with their related subjects of habit, instinct, etc., in fact the whole field of physiological psychology presents itself from new points of view. I have treated this topic to a certain extent in an address of mine published in this JOURNAL in June, 1902, and I will not on this occasion refer further to these subjects. When one attempts to correlate the nervous system with the psychic manifestations of different forms in the animal kingdom, it cannot but be recognized as a most prominent fact that mental development has evolved, *pari passu*, with the nervous system. This, it is true, is obvious from an examination of the nervous system without the help of the microscope at all, but it becomes a very impressive fact when one uses the most modern methods for microscopic examination of this part of an animal's structure. As we ascend the scale of animal life, it may be observed by the help of the Golgi and other methods that the neurones differ from one another not only in numbers but also in complexity; and in man the neurone is more complex, that is, has a larger number of processes than n any other animal. From this one would suspect an infinitely greater amount of communication between neurones with a corresponding psychic

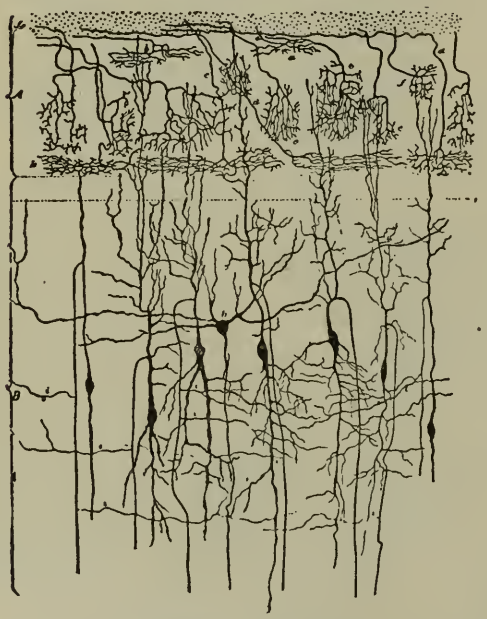


FIG. 23x. Section through the optic lobe of the chick (after A. Van Gehuchten). In the upper or outermost layer A are represented the terminations of the axones (optic nerve fibres) of the ganglionic cells of the retina; at B are to be seen neurones of the middle zone. The whole picture is that of a structure more elaborate than one expects to find in the spinal cord or bulb, in fact, suggests cortex from which one would infer that the optic lobe which is physiologically perhaps equivalent to the primary centres of vision in the mammals is also something more.

FIG. 24. Shows the neurone cell-bodies more particularly in the cortex of the superior temporal convolution, as brought out by staining with ordinary dyes (after C. Hammerberg).

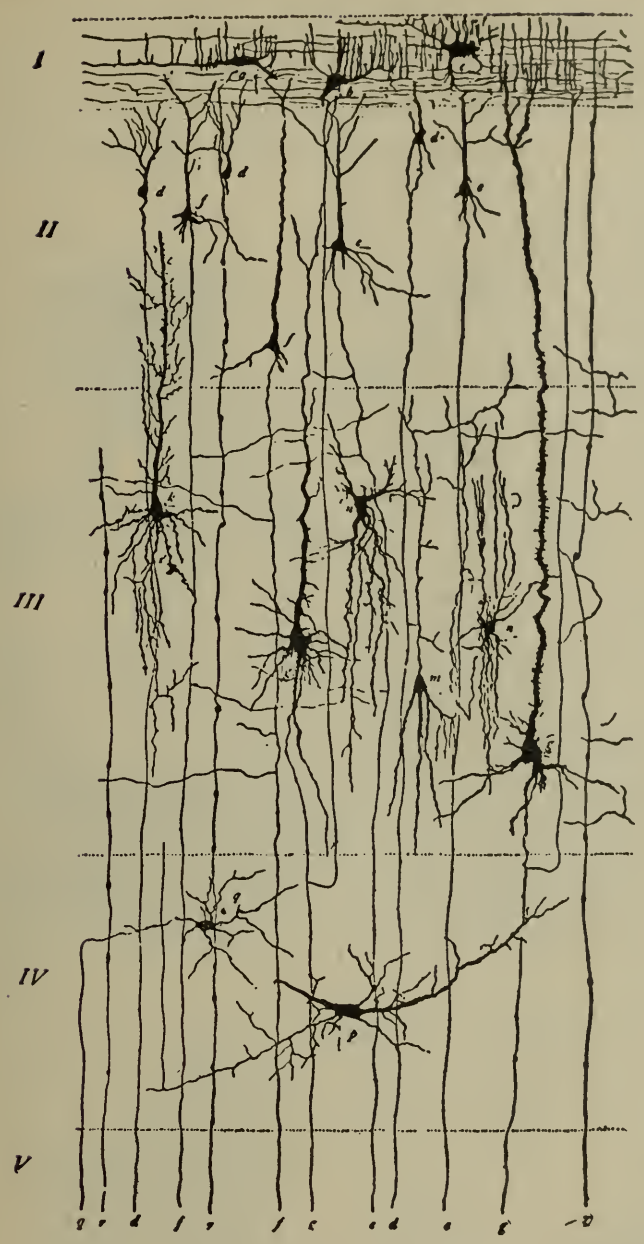


FIG. 25. Diagram of the cells of the cerebral cortex as brought out by the Golgi method (after Starr, Strong, Leaming). I. Superficial layer; a, fusiform; b, triangular; c, polygonal cells of Cajal; II. Layer of small pyramidal cells; d, smallest; e, small; f, medium sized pyramids with axones passing down into the white matter and giving off collaterals in their course; III. Layer of large pyramidal cells; g, largest or giant pyramids; k, large pyramidal cells with abundance of dendrites; all the pyramidal cells send long dendrites up to I.; m, Martinotti cell with descending dendrites and ascending axone; n, polygonal cells; IV. Deep layer; p, fusiform cell; q, polygonal cells; V. The white matter containing the axones from the pyramidal cells d. e. f. g., and from the cell of the deep layer q; r, neuroglia fibres.

advancement. The idiot is an individual who, looked at from this point of view, lacks a large proportion of those neurones which are of the highest importance to man, namely, those of the cerebral cortex. Hence we find that his psychic life is shrunk or rather has never properly developed; while in the insane there is often both shrinkage and actual alteration or disappearance of both the cell-body and its processes. It is probable, although this lacks demonstrative proof, that the greatest intellects have been the possession of those with, if not the greatest number, at all events the most perfectly developed neurones.

Possibly no principle has played a greater part in the most modern explanations of psychological processes, including memory itself, than the *law of association*. Now, a mere glance at the illustrations of this paper will suggest how much more completely we are acquainted at the present day with the physiological basis for all such explanations than at any former period. One can understand both localisation and correla-

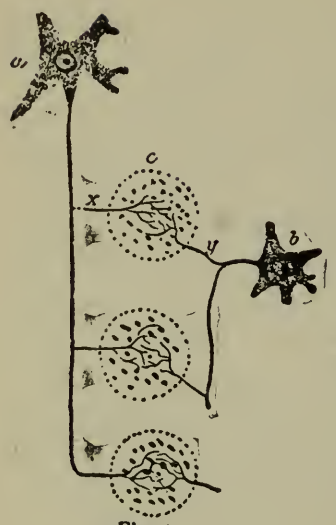


Fig. 1.

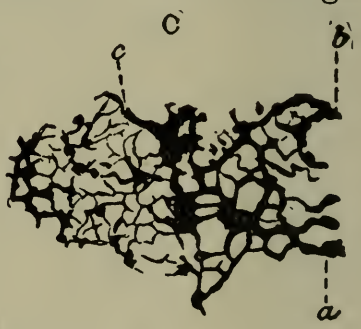
FIG. 26. A diagrammatic representation according to Held of the manner in which two neurones, a. b., communicate with one another by axones, their collaterals and the arborizations of both (after H. Held).

tion; and the whole truth about the brain or intellect cannot be told by one or by the other alone but only by interpreting the one through the other. Localisation in the extremely narrow sense of a former period cannot any longer be held, and in the most extreme psychic specialization it is likely that several parts at least of the brain are concerned. But this field is so large that I can only throw out a few suggestions on an occasion like this.

FIG. 27. A representation of an axone terminating by free branches among the cell-bodies (after H. Held).

SUMMARY.

The great advance within the past two decades in the knowledge of the minute structure of the nervous system is due chiefly to the discovery and application of special technical procedures; particularly of new methods of staining, which not only bring out the form and structure of the cell-body but also



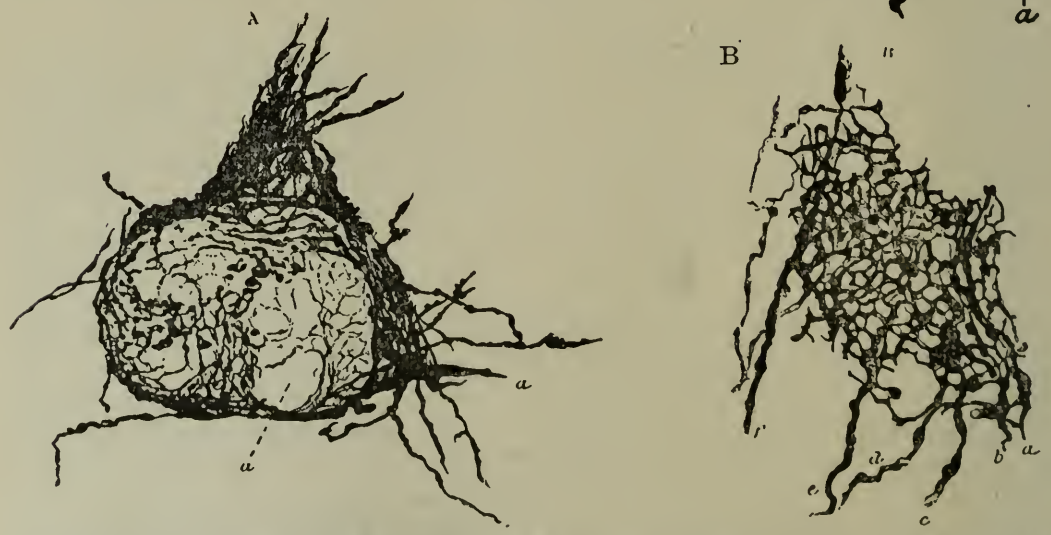


FIG. 28. A, B and C. Pericellular net-works considered by Held to be formed by the terminations of axones. Preparations from a cat twenty days old by the Golgi method (after H. Held). A cell with net-work from the cochlear nucleus. In this case the net-work surrounds the entire cell and also a dendrite passing upwards. The fibre a. corresponds to one of the thickened fibres of the cochlear nerve; B, part of the net-work around the cell in Deiter's division of the vestibular nucleus; the thickenings in the net-work may correspond to aggregations of neurosomes, a. b. c., d. e. f. axones which help to form the net-work. C, part of the net-work around a cell of the ventricular cochlear nucleus; the anastomoses of the coarser subdivisions of the fibres, a.b., and the larger swellings of the threads are specially well shown.

reveal the various processes or extensions of the cell in such a way as to show that the nerve unit is complex to a degree till lately scarcely suspected; and that there is all that variety and individuality in nerve cells which one should expect to find in the nervous system with its numerous and complicated functions.

FIG. 29. Represents a cell stained by the Golgi method and viewed with a high power (after H. Held). The finer branchings of probably the axones of other neurones may be seen uniting with the cell body and dendrites of the main neurone. It may also be inferred according to Held from this figure, that by the Golgi method there is at the best only a partial staining of the entire mass of fine branches in connection with any particular neurone, which would explain the so-called gemmules or thorns so frequently seen on the dendrites of neurones and especially those of the cerebral cortex.

The principal new methods are:

1. The-chrome-osmic-silver method of Golgi, perhaps most extensively and fruitfully applied by Ramón y Cajal, which stains all the main parts of the cell a dense black and is more useful possibly than any other in bringing the nerve processes into bold relief.

2. The *intra vitam* methylene blue method of Ehrlich which has proved itself particularly useful in determining the forms of the nerve endings of the periphery.

3. The Nissl method of staining with methylene blue, successfully modified for some purposes, as a double staining by Held, and which has brought into view the Nissl or tigroid bodies which have proved so useful a guide to the knowlege of the physiological condition of the cell, and by the help of which "primary degeneration" was discovered.

FIG. 30. Shows the terminal branches ending on the cell-bodies and dendrites and helping to form a complicated net-work such as that shown in Fig. 28 (after H. Held).

4. The Weigert-Pal method of hæmatoxylin staining, by which after fixation and hardening with bichromate of potassium, the cell-bodies and their myelinated processes or axones are marked off from each other, the latter staining a blue black while the bodies of the cells appear of a yellowish tinge. By this method Flechsig determined that in the developing animal certain groups of neurones in the nervous centres become me-

dullated at about the same time and that these are physiologically equivalent and so constitute "nerve tracts". The method is also applicable to marking out degenerations in a negative way when these processes are so complete that the whole of the myelin has disappeared, there being no staining of axones or nerve fibres in such regions.

5. The Marchi method is the most useful known to demonstrate degenerative processes of the neurones when these have not gone too far, because by the application of osmic acid to specimens hardened in bichromate of potassium or chromic acid, the myelin sheath now reduced to fat is stained black.

In consequence of the discoveries in minute anatomy rendered possible by these various methods, all departments of neurology in the broadest sense have been advanced; physiology, pathology and psychology, have taken on a more or less new from.

In consequence of the results of the researches of such investigators as Bethe, Apáthy, Held, and many others, the Neurone Concept or Doctrine, as formulated by Waldeyer in 1891, must, in all probability, be modified; i. e. the doctrine of concrescence must be admitted at least to some extent.

The Neurone Concept in its original form has put most if not all the facts of the nervous system already known on a more reliable anatomical foundation; enabled the teacher of every department when dealing with the nervous system, the better to explain its processes whether physiological, pathological or psychological. And so far as can be seen at present these advantages, which are of the highest pedagogical importance at all events, are not likely to be seriously diminished by any modifications in the Neurone Concept that the future is likely to bring forth; though, bearing in mind the revolutions in thought that have been wrought in the past in consequence of new discoveries, one must speak with caution and modesty. It may be truthfully said that the Neurone Concept has done for neurology what the doctrine of organic evolution did for biology generally—it has completely changed the point of view.

ATROPHIC SCIRRHUS OF ONE MAMMARY GLAND ASSOCIATED WITH PAGET'S DISEASE OF THE NIPPLE ON THE OPPOSITE SIDE.

BY

JOHN M. ELDER, M.D.,

Surgeon to the Montreal General Hospital; Assistant Professor of Surgery, McGill University.

The following case has appealed to me as being worth reporting because of the co-existence of a benign and a malignant condition in the breasts of the same patient, and the undoubted evidence it fur-

Fig. I. Scirrhous Carcinoma of left breast: Paget's disease of right nipple. M. G. H. Series, 1902, No. 556.

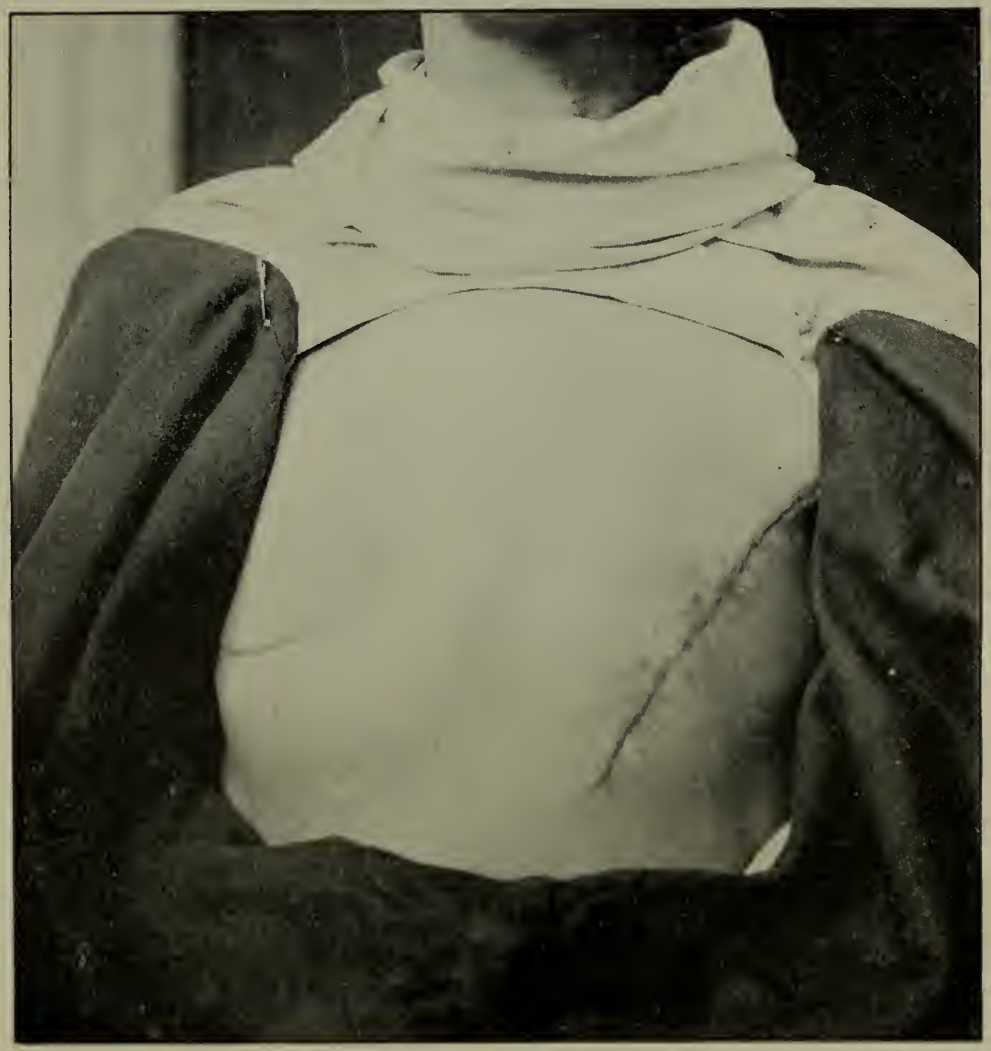


Fig. II. Scirrhous Carcinoma of left breast: Paget's disease of right nipple. M. G. H. Series, 1902, No. 556.

nishes of long continued irritation and inflammation as an etiological factor in these conditions.

Mrs. M. W., aet. 41, married at age of twenty-four, seven children, last one born prematurely nine months before admission to the hospital, and died at age of four months. Patient had been subject to bronchitis, otherwise healthy save for breast troubles during periods of lactation, when she always had sore nipples and acute mastitis. Left nipple had always been retracted and she has never been able to nurse with it. The right nipple invariably became cracked and bled during lactation, in spite of which she always nursed her children from this breast.

Present trouble in the left breast was referred by the patient to two years before admission to the hospital, when she began to have a dragging pain in her breast, and noticed a dimpling of the skin over a small tumour near the nipple. This condition remained stationary until six weeks after the birth of her last child, when suppuration occurred, and an abscess ruptured above the left nipple, leaving an angry red scar, overlying a hard lump in the breast tissue. Pain was present only on severe over-exertion. Only in the last few weeks prior to admission did the patient notice any enlargement in the axilla. There had been no appreciable loss of weight or strength.

During last lactation a small abscess appeared in close relation to the right nipple, which as usual became cracked and bled easily, leaving a hard rough area close to the nipple.

There was a family history of tuberculosis; her mother and one brother had died from pulmonary tuberculosis; none of cancer.

Condition on admission, May 21, 1902 :—Just above the left nipple was a red angry ulcer, with scab and dried up secretion, in mid-clavicular line, the size of a twenty-five cent piece, with red edges (Fig. 1), and beneath it was a hard tumour, the size of a small egg, firmly adherent to the skin, but movable on the deeper structures. It was about one and a half to two inches in diameter and was in the upper and outer quadrant chiefly. It was not painful or very tender. Below the nipple two other small isolated masses were to be felt, one tender on pressure. The skin over the centre of the tumour was retracted. The axillary chain of glands beneath the pectoral border were markedly enlarged, and a mass could be distinctly felt there. The deeper axillary glands could not be palpated. It was a typical clinical picture of the atrophic form of scirrhus of the mammary gland.

The right nipple was larger than normal, of very firm consistency, showing slight hypertrophy of papillæ; the surrounding skin was

thickened and infiltrated to the touch. There was no tumour to be felt in the breast itself, nor any evidence of enlarged axillary glands. The diagnosis of schirrus of left breast and Paget's disease of nipple on the right side was made, and on May 26th, 1902, the patient was operated upon under ether anæsthesia. Both breasts were amputated, and the glands in the left axilla dissected out. The pathological report was: "right nipple densely fibroid; left breast shows schirrus cancer with glandular axillary metastases; a confirmation of the clinical diagnosis."

At the operation for the left breast, a racket-shaped incision was made, the handle extending beneath the anterior axillary fold to the axilla, and this was first opened and all axillary glands removed and dissection carried out towards breast. Consequently all vessels were tied near their origin, lessening the number of ligatures required, and enabling me to remove the chain of glands and breast *en masse* without rupturing the lymphatics, and so making it impossible to disseminate infective material over the operative area. The incision was sutured without drainage.

We next turned our attention to the other breast, which required to be excised, but without the necessity of opening the axilla. As the patient was a very spare woman, and we had already sacrificed considerable tissue in getting wide of the trouble in the left side, we had to plan the incision here to allow us to get sufficient flaps to admit of closure of the wound. This we got by making a transverse elliptical incision, thus removing the diseased nipple and the entire mammary gland, and enabling us to approximate the flaps from above and below (Fig. 2).

Dry dressings were applied to both sides and the arms folded across the chest and bandaged there to prevent any tension on the suture lines, and to act as splints at the same time. Patient was allowed up on second day, hand and fore arms massaged daily, sutures removed tenth day, and she was discharged June 14th (nineteenth day) with perfect union of flaps. So far (October, 1903), there has been no recurrence on either side.

Here we have the long continued and frequently recurring attacks of mastitis in the left breast producing a local irritation which we so often find preceding cancerous degeneration, and, to a lesser extent, the same causes in the right nipple, producing a chronic fibroid change, which of itself is suggestive of degenerative processes. The left breast and axilla showed nothing we are not quite familiar with, though we

seldom get such a clear history of frequent attacks of mastitis as an etiological factor.

The right nipple undoubtedly owed its pathological condition, in part at least, to over-use; and the history of slight ulceration, cracking, watery discharge, and the condition of thickening and hypertrophy of papillæ with the brown discolouration and scaly feel that were present, enabled us to make the diagnosis of Paget's disease of the nipple.

The sequence of cancer on Paget's disease of the nipple has been frequently demonstrated since this author first drew attention to it by the report of fifteen cases. All of these within a year or two developed carcinoma. The chronicity of the disease is referred to by many authors, and Morris reports a case in which it was six years before carcinoma supervened. Duhring reports another lasting ten years, and Jamieson one of twenty years' duration.[1] The undoubted development of cancer, sooner or later, calls for the total removal of the breast in which this condition of the nipple persists. In the American Text Book of Surgery, twenty-four out of thirty-five cases of Paget's disease are cited as having become malignant, and this is probably an underestimate.

AN OPERATION FOR THE RADICAL CURE OF UMBILICAL AND MEDIAN VENTRAL HERNIA.

BY

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The ordinary operation for the cure of large umbilical and median ventral hernias was so unsatisfactory, in that it gave such a large percentage of relapses, that it was with much interest I saw practised some three years ago, in Dr. Weir's Clinic at the Roosevelt Hospital, New York, what was, to me, a new method of treating these hernias. To Mr. W. J. Mayo is due the credit of being the originator of this operation, which he first described in the Annals of Surgery for August, 1901; but I find no mention of the operation in any of the later surgical text books. I, therefore, thought it would be of interest to some of the members of this society to briefly describe the operation, and tell the results of my own experience of it.

A vertical[2] incision, linear or elliptical, depending upon the

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Read before the Montreal Medico-Chirurgical Society, Nov. 6th, 1903.

[1] Diseases of the Skin, Crocker.

[2] Mayo's incision was transverse.

redundancy of tissue, is made over the hernial protrusion, and great care will often be necessary in cutting down, not to wound the contents of the sac, so thin often are the walls. The sac is then dealt with in the usual manner, and in large ventral hernias it is preferably reduced *en masse*, unless operation is done for some inflammatory affection. Having returned the abdominal contents, and closed the peritoneum, should it be necessary to open it, the operator next directs his attention to closing the opening between the two recti abdominalis muscles, which have become separated to such an extent as to permit the hernial protrusion. The old method was to suture together the aponeurosis of these muscles, and thus try to restore the linea alba. This was just where the operation failed. You only replaced the linea alba, which had already given way, by a line of scar tissue, which readily yielded to pressure again, with a resulting relapse of the condition, necessitating wearing a truss—no true cure.

The operation I bring to your notice to-night aims at filling in the hernial opening with firm *muscular* tissue, thereby preventing relapse, and leaving a strong anterior abdominal wall. This is effected by opening the sheaths of both recti muscles at their inner edges from a point well above the hernial opening to another point well below it. The muscles are then thoroughly separated from their sheaths opposite this area, a proceeding attended often by troublesome hæmorrhage. The muscles are then held up by retractors, the posterior aponeurosis is next brought together in the median line. Mattress sutures of heavy (preferably chromicised) cat-gut, are passed up through the *internal* median border of one rectus muscle, and the free ends then passed up through the other muscle near its *external* border. When these sutures are pulled upon, it will be seen that the first muscle will be pulled over under its fellow, and there it is kept by tying the sutures. Two to four of these sutures will be required, depending on the size of the hernia. A few interrupted sutures of the same material fastens down the free edge of the upper muscle to the body of its underlying fellow. Thus the one rectus muscle will be super-imposed upon its fellow over the old hernial orifice, and, if all hæmorrhage is carefully checked, these raw surfaces will unite, and the firm, muscular pad thus formed will prevent any future hernia.

The operation is completed by uniting the anterior aponeurosis in the median line by a running suture of cat-gut, and closing the cutaneous opening with silk-worm gut sutures. A firm pad, retained over the wound by strapping, with an abdominal binder to give support in case of post-anæsthetic vomiting, completes the dressing. The after treatment is the same as for other operations for radical cure of hernia, and the patient, I hold, should in no case be allowed to use

the muscles concerned before three weeks, at least. No form of truss should be allowed, as pressure is bad in these cases, but an ordinary flannel or elastic abdominal binder or better still, one of linen mesh, should be worn for the first month or two after the patient is going about. One would expect that there would be some loss of function in, or painful action of, the recti abdominalis muscles after the operation, but I have so far failed to find such a condition in the few cases I have operated upon.

I have performed the operation upon four patients—all women,—three of them in the summer of 1902 (Nos. 546, 729 and 1122 Montreal General Hospital Reports), and one I did in a private hospital this autumn for a confrère in this city. Two of the cases were purely umbilical hernia, of large size; in one there was strangulation with infection of the sac, necessitating immediate operation, and in the other, I could not reduce the adherent omentum and had to remove it. The others were more ventral, one especially extending from well up in the epigastric fossa down below the umbilicus. All the hernias had lasted for years—one followed a laparotomy for some gynæcological operation, and a previous attempt at cure had resulted in a relapse, with strangulation. The ages of the patients varied from thirty years to fifty-six years. I have kept track of all of them since operation, and, so far, there has not been the slightest evidence of recurrence, and the functional result has been all that could be desired. Especially can one feel the firm muscular ridge left in the median line by the union of the two recti muscles. In all the operations there was considerable shock, but in none did I have any septic or other troublesome symptoms after the first twelve hours.

SYNOPSIS OF REPORTS OF THE CASES.

I.—*No. 546, Surgical Reports, 1902, M. G. H.*

Mrs. R. P., age 56, house-wife, mother of eight children, admitted to ward "K" May 20th, 1902, complaining of varicose veins of left leg. A large umbilical hernia was found on examining her, which she says first appeared 14 years ago, at the birth of her last child, and has been gradually increasing in size. It is not reducible, though it has never given symptoms of strangulation. The abdomen is fatty and pendulous, and the note over the hernial protrusion is dull with patient recumbent, but becomes tympanitic when she stands up, and the coils of bowel in it could then easily be palpated.

The varicose condition in the left leg was first treated by excision of the affected veins, and ten days after the first operation, which had resulted very favourably, the umbilical herina was operated upon after the method mentioned above. The sac had to be opened, as the con-

tents could not be returned through the neck, and it was found that the omentum was adherent to the sac wall. After ligaturing the omentum and returning the free end into the abdominal cavity, the sac with the adherent omentum was excised, and the peritoneal opening closed with cat-gut sutures. The operation was then finished as described above. Recovery was without incident, and when she left the hospital one month after admission, there was a thick muscular pad at the site of the former umbilical hernia.

II.—*No. 727, Surgical Reports, 1902, M. G. H.*

Mrs. M. P., age 33, charwoman, the mother of eight children, having twice had twin pregnancies, was admitted to hospital on June 30th, 1902, complaining of umbilical hernia. About two years previously, after giving birth to twins, she noticed a swelling at the umbilicus about the size of a large orange. It gave no special trouble until five months before admission, when she had another baby, after which the tumour increased in size, and it pained her on standing or lifting, and especially on jumping down from a step. After eating, during past week, she notices a distressed feeling at the site of tumour, associated with nausea, vomiting and anorexia. Rest in bed in hospital, with fluid diet, caused a marked diminution in the size of the tumour. Examination showed a complete separation of the two recti muscles, along the median line, from near the ensiform cartilage to near the pubic symphisis. At the umbilical region this separation amounted to $1\frac{3}{4}$ inches, and through the opening at this point a definite hernial tumour, the size of a large orange protruded, and became pendulous when the woman stood up or strained. There was impulse on coughing, and percussion over the tumour gave a tympanitic note. Here we had a median ventral hernia extending down between the two recti muscles, with a marked protrusion at the umbilicus. At operation two elliptical incisions were made, extending nearly the whole length of the recti muscles and enclosing all the skin in the pouching area between the separated muscles. The peritoneal cavity was accidentally opened at the umbilicus, but for the most part the protruding peritoneum was allowed to drop back and the operation completed in the usual way. She left the hospital on the 25th day after admission with a good result, and has remained well since, continuing her former arduous occupation.

III.—*No. 1122, Surgical Reports, 1902, M. G. H.*

Mrs. L. R., age 50, was admitted September 23, 1902, with symptoms of partial strangulation in an umbilical hernia. She was the mother of two children, and had noticed the hernia for the past 10 years, seven years after birth of last child. On several previous occasions she has

had symptoms of strangulation, but they always passed off upon reduction of the hernia. For the past year she wore a truss, but it had failed to always retain it. The present attack of strangulation began the day before admission, and as it did not yield to the usual remedies, and vomiting and pain were becoming incessant, patient was sent into the hospital from her home in the Eastern Townships. The bowels had moved slightly on day of admission.

Operation done by removing skin covering tumour by a vertical elliptical incision. On opening sac, the contents were found to be omental, which was gangrenous, and sac wall was, of course, also infected. All the infected tissue was removed, and the peritoneal opening closed without drainage. The recti muscles were then plicated so as to cover up hernial opening, and the wound closed as in the other cases. In this case, as was to be expected, there was fever (101° to 102°) for the first two days after operation, but this subsided nicely, and patient made a good recovery, and left for home within the month. She still remains well, with no tendency to hernial trouble.

IV.—A private patient upon whom I operated for Dr. C. H. Church, Montreal, at the Glengarry private hospital here. The case was one of post-operative ventral hernia which had already been operated upon. I subjoin Dr. Church's report of this case, which he was good enough to furnish me for this article, he having carried out the entire after-treatment of his patient.

A. M. W., aet 38, female, unmarried. Patient is large and fleshy with pendulous abdomen, weighs 190 pounds. Always enjoyed good health until 1893, when she had both ovaries and tubes removed, by usual median incision, for a tumour of unknown nature. Within one year following this operation a hernia developed, which in three years had reached the size of an infant's head.

In 1898, an attempt at a radical cure was made, resulting in only a temporary cure, the hernia reappearing two years later. In 1892, the hernia had again increased to a very large size, necessitating the constant use of a truss day and night, in order to keep the hernia from appearing, which, however, in the erect posture never was sufficient to retain it. In February, 1903, and again in September, strangulation took place and was only relieved with great difficulty. Operation advised for radical cure on September 16th. Operation on 18th. Stitches removed on the 29th, a normal temperature intervening after first day following operation. Patient up and about in five weeks.

The patient made an uninterrupted recovery after operation, suffering very little pain at any time. When the first dressing was done, ten days after operation, a distinct padding could be easily felt, along

the line of incision, and extending outward for half an inch on either side, this prominence is quite perceptible at the present time, though to a less degree. Since getting up, patient has worn a light abdominal support of linen mesh.

If one may be permitted to judge, from an external abdominal examination of the lower abdominal area, at the present time, there would appear to be a strong, muscular union between the opposing surfaces of the recti muscles, extending from the umbilicus to the symphysis pubes, resulting in a strong barrier to any attempt at a return of a hernia in this area.

COMPLETE ABSENCE OF THE LEFT FIBULA ASSOCIATED WITH DEFORMED FEMUR.

BY

A. E. GARROW, M.D.

While partial or complete absence of the fibula associated or not with other deformities or defects is not of rare occurrence, nevertheless, the number of cases coming under the observation of any one surgeon is comparatively small. Complete absence of the fibula is very much more common than partial, in the latter the upper middle or lower segment of bone may be wanting.

In most of the cases recorded, there is associated with the absent fibula alterations in the shape of the tibia, viz.: a sharp bending usually forward, at the junction of the middle and lower thirds, and over the prominent angle a more or less well marked "scar-like" depression.

Kirmisson refers to coexistent tarsal and phalangeal deformities and defects, several tarsal bones being united into one bony mass, lack of one or more toes with their corresponding metatarsal bones Obliquity of the lower articular surface of the tibia favoring dislocation of the ankle outwards seems to be common.

Very little seems to be known about the causation of this condition. Cotton and Chute, in criticizing the various theories advanced, are inclined to agree with Kirmisson, Hoffa and Walsham, who accept Dareste's view published in 1882, viz.: "That the origin of the typical deformity would be as follows: Between the fifth and eighth week, pressure of a too tightly fitting amnion interferes with the development of the exposed fibula and the outer toe or toes of the exposed foot. Lack of space determines the bend of the growing tibia; the adhesion which produces the so-called scar is a result of contact and adhesion of the most salient points of the tibia with the enveloping wall. The

Read before the Montreal Medico-Chirurgical Society, Nov. 6th, 1903.

Fig. I.

Fig. II.

Fig. III.

Fig. IV.

persistent lack of growth of the whole limb is probably a result of deficiency in vessels and nerves due to the early pressure, as well as of disuse."

Handek, in 1896, showed by microscopical examination of the so-called scar—that no scar really existed, but only such fibrous and atrophic changes as might arise from pressure.

This child, 3 weeks old, whose photograph and skiagraphs I show, was referred to me by Dr. Berthiaume, of St. Jerome. The deformity was rrecognized at birth. The left limb is shorter and somewhat less developed than the right. The thigh is held flexed and abducted, abduction and extension are much limited, the left patella is smaller than the right; the leg is held in a somewhat abducted position as in genu valgum. The thigh is much shortened, and the femur is markedly bowed forward, as can be seen in the large skiagraph (not reproduced here). Examination readily reveals absence of the fibula, with the foot abducted and everted—there is no evidence of bowing of the tibia nor of any scar on the skin. The toes are intact, well formed, not webbed—nor can any tarsal deformity be recognized either on examination or from the skiagraphs.

The muscles are as well developed proportionately in the left as in the right limb, otherwise the child is healthy and strong, being the fifth in the family; all the other children are strong, well developed and normal.

CASE OF CONGENITAL DISLOCATION REDUCED BY THE LORENZ METHOD.

II.

This child, now seven years old, is one of a series of four cases which came under my care last year, short notes of which I have already presented at a recent meeting of the Canada Medical Association.

Reduction was effected by the so-called Lorenz method on October 26, 1902, the limb fixed in the abducted and everted position by means of a plaster of Paris spica, and the child allowed to walk about. At each change of dressing the abducted position was diminished, and at the same time a skiagraph was taken after the plaster had set, in order to determine the position of the head of the bone.

The last bandage was removed about the first of July, 1903, less than nine months from the time of reduction; the child walks as you can see with a very slight limp, movements at the hip joint are perfect and there is less than one centimetre of shortening.

An examination of the skiagraph taken before reduction shows the head of the bone lying well above the acetabulum, while the second

skiagraph, taken when the last bandage was applied, illustrates the abducted position maintained as well as the head of the femur lying in a comparatively deep acetabulum.

The improvement in the child's posture and gait is very satisfactory, no lordosis is present, and there is a complete absence of the lurch which characterized the walking.

I am inclined to attribute the satisfactory result of treatment to the following conditions: The age of the child, the poorly developed muscular condition, but above all, to the well developed acetabulum which existed prior to reduction, as can be seen from examining the skiagraph.

THE STUDY OF ANATOMY.

BY

CHARLES A. HEBBERT, M.R.C.P., LONDON,
Professor of Anatomy, Bishop's College, Montreal.

INTRODUCTORY LECTURE, 1903.

One of my teachers for whom I had a very great respect and esteem, wrote in the introduction to his first book, "that a time came in every man's life, when it was becoming to him to give the result and expression of his own experience and observation so far as in him lay," more especially to further in every possible way, the progress of his students, to encourage their efforts to succeed and to strengthen their energies to master the subject or subjects of their investigation. In such a spirit, help may be suggested by the description of one's own difficulties and failures in learning this most important branch of his medical training, the basis in fact of all his professional studies.

When I use the term profession, I say the most acceptable, the best accepted and proper phrase to indicate our position in the world, a term honoured by all nations as above the sordid consideration of greed. Never let your profession be degraded by such conditions as might be indicated in the conduct of a grocery or general utility-store, or other business conducted on so-called "business principles" dealing with mere personal advantages, inconsiderate of others' comfort, health or condition.

To return to our original subject, though much I may say will apply to other lines of the study of medicine I insist that a thorough knowledge of the frame and anatomy of the human body is *imperative*, before any future proceedings or interference are suggested or undertaken. You cannot too earnestly think what the value of this study may be to you, and it is in the after life of your career that you will learn to esteem, as of infinite importance, the time, often wearisome

and painful, sometimes almost beyond endurance, you have spent in the acquisition of your knowledge of anatomy. You must always be alive to the fact that your study of anatomy and its foster sister physiology, are only preparations for your aid to the sick and suffering and your knowledge of or the want of it, may be the cause of life or death to your patients. Never let this fact be absent from your minds, you are assuming the gravest responsibility, if you neglect this serious and important study. An eminent surgeon in England told me that busy as he was, he never failed to read some pages of his book on anatomy every day in his life, and he attributed much of his success to this daily re-collection.

In approaching the subject let me impress on you the value of the study of anatomy as an element, a great, important educational element, not only in this special branch, but in all your future life interests and work. When a traveller first visits a new country he uses all his senses and applies them to his own progress and advantage. That is, he observes, reasons on details and decides his further action. In fact he follows the processes of mind as laid before you in your works on logic and physiology. 1st perception or apprehension; 2nd comparison or reasoning; 3rd willing or decision. In your work do not forget that by these same simple processes you will most easily master, and when mastered, retain your details of the subject. Use your common sense and apply your comprehension of details as in ordinary life. By such means you will find the value of the study, still aiding in your life education, leading to trains of thought and ideas, at first you will think hardly conceivable; you will learn those essential conditions of scientific thought, accuracy of details, clearness in description, conciseness in expression.

All these factors in your education I repeat are of the highest importance, and I cannot too emphatically and earnestly insist on your deliberate consideration with regard to your teachers, or whatever title best or least befits their dignity, think of them as guides, who have tracked and passed over the trails you are invited to follow. They have, as all guides, found the way "o'er moor and fen, o'er crag and torrents," and encountered many obstacles and dangers. They are merely showing you what they have experienced and endured. Such faithful guides trust! and they will trust you. A faithful trust in a man who is believed to be loyal to work and endeavours, begets loyalty, honest and manly work in his pupils and disciples. It is by such genuine qualities that the greatest teachers and instructors of our art, have aided humanity's interest and well being: nihil dico amplius.

One of the first difficulties you have to meet with is the nomenclature, often vague, grotesque and at first sight apparently unmeaning, but it is founded on the work of centuries, the work of men who patiently and labouriously examined the body under conditions unknown and unappreciated in these times. Terms which they used and have handed down to us, are derived from the current language of science, Greek, Latin and their derivatives. Many names of illustrious observers and workers are used in the description of tissues and parts of the body, and we have to mention those names in our lectures, names though to be remembered and thought of by every earnest student. They are those who have simplified and illumined our work. Recall these names, Harvey, Vesalius, Scarpa, Paré, Colles, Quain and others, and we must acknowledge with all feelings of reverence and gratitude, the genius and carefulness of our great predecessors.

Other terms are used to denote the position of parts, these are sometimes direct derivatives of Greek or Latin and sometimes hybrid. These certainly present trouble to the tyro, but they have the authority of age and tradition and so must be respectfully learnt: I refer to such words as Acromion *ἄκρος ὦμος* the tip of the shoulder olecranon *ὠλενη κερας* contracted to *κρᾶς*, the elbow tip. All such troubles can be overcome by strenuous and constant labour.

The next obstacle will be the learning of the mechansim of joints and the bony framework. The longer we study the more we appreciate the wonderful and interesting arrangement of these parts of our body. You will learn the structure of the wrist and hand, showing how precision, dexterity and delicacy of movements are possible owing to the number, variety and arrangement of the articulations, how force is distributed and friction is minimized. You will learn how in other parts strength is effected and weight is maintained by the massiveness and thickness of the bones, as in the pelvis, and you will still further learn how such delicate, fragile structures as the brain and spinal cord are protected and supported with the least possible danger to their important function and action. Do not be discouraged if you find you do not readily recollect the facts of anatomy. It will come in time and remember "Quum se colliget animus atque recreavit, tum agnoscit illa reminiscendo."

When you have collected the facts they remain. The brain never forgets!

Anatomy in its literal sense means the dissection of parts by cutting. *Ἀνατομη, τέμνω*. It is difficult to determine the date at which this science began to be cultivated, but it is probable from the earliest times some persons took advantage of favourable circumstances to acquaint themselves with it. The Druids, priests judges and physicians

executed victims as sacrifices, and no doubt availed themselves of the opportunities of acquiring some knowledge of anatomy.

Æsculapius dissected animals for the instruction of his students and his descendants, the Æsclepiades founded the schools in Cos, Rhodos and Cnidos. The Jews did not neglect anatomy, which they studied from the carefully prepared bones of their ancestors and their manipulation for embalming. But the first real progress was made by Erasistratus, born, 300 B.C., who obtained permission to dissect human bodies. Up to that time the work had been done on animals with a view to study the comparative anatomy of man.

Herophilus, whose name remains with us as a term in the skull ("Torcular Herophili"), was born in Carthage about the same time and was reported to have dissected living subjects in Alexandria. Parthenius, 200 B.C., published a book on the dissection of the human body. The next great name was Galen, A.D. 181 (Venæ galeni), who was the principal historian of the subject and to whom we are indebted for the knowledge of the works of the earliest observers from Æsculapius to his own time. Anatomy was now neglected for a long period, till in the reign of Frederick II., of Sicily, A.D. 1191-1250. This intelligent monarch made a law prohibiting the practice of surgery without a previous knowledge of anatomy. In the 16th century we have such names as Lacuna, Sylvius and the great Vesalius, who has been denominated the founder of human anatomy. After many troubles and persecutions on account of his advanced opinions and active investigations, he was recalled to Italy and succeeded his friend and former pupil Fallopius in the Chair of Anatomy at Padua. One of his achievements was the description of the sphenoid bone, and his name is curiously perpetuated by a minute foramen in the great wing. Is not this an irony? It reminds one of Hamlet's sarcastic remark:

> "To what base uses we may return, Horatio!"
> "Imperious Cæsar, dead and turned to clay,
> "Might stop a hole to keep the wind away."

A contemporary of Vesalius was the eminent Eustachius.

In the 17th century progress was rapid. Harvey, in 1619, discovered the circulation of the blood. Shakespeare, who died in 1616, wrote in his play Julius Cæsar, as if it were a prophecy of this discovery: (Brutus to his wife Portia).

> "You are my true and honourable wife.
> As dear to me, as are the ruddy drops
> That visit my sad heart."

The microscope was employed to detect the small vessels. The

lymph vessels were demonstrated by Aselli, and in the same period Wharton, Malpighi and Ruysch were distinguished by their work.

In the next century we have records from every nation in Europe, Italy still maintaining its preeminence, Pacchioni, Valsalva, Morgagni, Santorini, etc. In France, Winslow, Vicq d'Azyr, Bichat. In Germany, Haller and Meckel. In Great Britain, Hunter, Cruickshank, Monro, Sir Charles Bell. In Holland, Boerhave and Bohm. I only select a few representative names, but there are many others hardly less illustrious. These I mention, you will constantly hear of, and my object is to impress on you the work which has been accomplished in this science, through so long a period under such arduous circumstances, and to ask you to think what devoted labour and careful observation these mighty predecessors gave for the benefit of their posterity and to accept and revere them as noble examples, stimulating and encouraging your own studies and investigations. I will ask you to forgive me if I have been prolix. I have spoken as I have thought, and my experience as a student has dictated:

> "Neque vera laus ei detracta
> Oratione nostrâ, neque faisa
> Afficta esse videatur."

The original communication, by Dr. Wesley Mills, Professor of Physiology in McGill University, upon the Neurone Concept, is a masterly exposition of that important doctrine in all its bearings. The facts have been brought together into a form easily accessible, and the subject has been sufficiently well illustrated to make it very clear. The fasiculus, in a separate cover, may be had from the publishers upon application.

The thirty-third annual volume of the Montreal Medical Journal will begin with the issue for January, 1904. That number will contain four important papers published for the first time: Aneurism of the Abdominal Aorta [abstract], by Dr. William Osler; An Analysis of 486 cases of Pneumonia and 100 Autopsies, by Dr. John McCrae; The Ill-Health of Friederich Nietzsche, by Dr. George M. Gould, and Poisoning by Wood Alcohol, by Dr. Frank Buller. Dr. Osler's paper will be read before the Montreal Medico-Chirurgical Society on the 29th December, and will appear as an abstract.

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THE CURSE OF EVE.

It was a favourite view of Sir Thomas Browne—a name well known to all who have been in the habit of hearing Dr. Osler's addresses—that the stork only chose to inhabit those countries which were free. Strangely enough, in these days, it is to countries which are free—if freedom be indicated by a republican form of government—that this bird of good omen comes the least frequently.

Previous to the year 1840, in the United States, the increase in population by native reproduction was seven times greater than the growth of immigration, and both Washington and Jefferson estimated that in the year 1875 their country would contain eighty millions of native born Americans. As a matter of fact, according to the census of 1900, the numbers were not more than forty-two millions, the rest of the poulation being made up of immigrants, the children of immigrants, and negroes. Massachusetts, at the time of the census had, in its population of 2,805,346, as many as 843,324 persons of foreign birth.

The Massachusetts Bureau of Labor Statistics has compiled a more recent report on the nationalities of the people engaged in the industries of the state. It deals with industries and professions employing 1,079,000 persons, and of these 62.46 per cent. were not natives of the United States. Of the natives only 19.73 per cent. were born in Massachusetts; in New York, 76.6 per cent. of the citizens are aliens or children of aliens.

The Government statistician of New South Wales has issued an essay on statistics, which shows, according to the *Australasian Medical Gazette*, that whilst the population of the state has increased considerably in recent years, the proportion of childless marriages has increased out of all proportion, so that the birth-rate has fallen to 25 per 1000.

In France, during the past year, according to the returns of the Bureau of Vital Statistics, there were 25,988 more deaths than births, and 20,000 fewer births than during the previous year, while the increase in the number of deaths was 37,052. The record shows only 827,297 births for a population of more than 39,000,000, though there was a slight increase in the number of marriages, and a slight decrease in the number of divorces, which fell off from 7,179 to 7,157. In all the other European states the natural increase of the population is considerable, free France alone shows a diminution in numbers.

From this gloomy outlook one can turn with satisfaction to the condition of affairs in Montreal and in the Province of Quebec generally. In this city, during the year 1901, the birth rate per thousand of population was 32.44; last year it ran up to 38.65. Amongst French Canadians the rate was 43.56; amongst other Catholics, 22.41; and amongst Protestants, 23.75. Other and equally remarkable testimony to the fruitfulness of the French Canadian population is afforded by the Provincial Board of Health which obtained access to the records of the Société des Artisans Canadiens Français. The officials investigated the medical examination reports of the members who applied for admission into the society, and were enabled, by counting the applicant and the number of his brothers and sisters, to establish the fecundity of 1,000 French Canadian families taken at random, 500 from the urban districts and 500 from the rural districts. The figures show an average of 9.06 per family for the urban districts, and 9.33 for rural districts, or 9.19 for the two districts combined together. In Norway the number of children per marriage is 5.8, and amongst the Russian peasantry 7.2 only.

These figures are for prolific marriages only, as no sterile marriages figure in the records, but this deficiency, the officials think, is probably more than compensated by the fact that after the date of the medical

examination quite a number of members continue to have brothers and sisters.

Another valuable fact is that the birth rate in Quebec has not perceptibly decreased since 1884; the average for the past nineteen years has been 39.4; last year it was only .75 less than that, and 6.21 above the rate for the previous year. If France could obtain such a birth rate that country would be enriched by 1,481,500 citizens every year.

This diminution of the birth rate is no new thing. The Greeks foresaw and feared it; to them, the Amazon was the woman broken away from her natural obligations, always a peril to the race, and amongst the Romans, Juvenal made his grim jests at her expense. A false education, which stimulated false energies and excited abnormal ambitions, made her contemptuous of her femininity, and encouraged her to substitute for it an ideal which was, then as now, hybrid and grotesque.

The fall of the Race always comes through the Woman. Tempted by the "subtle beast" towards a false ambition and away from her appointed task, she puts forth her hand to attain to a knowledge which was never intended for her, and brings the disaster of obliteration upon her race. That is the Curse of Eve.

PRIORITY OF OPERATION.

A very pretty contention arose at the meeting of the Medico-Chirurgical Society, held on the 6th November, over the evolution of the operation for umbilical herina by overlapping the recti muscles. It was precipitated by Dr. Elder's communication published in this issue, in which he credited it to Mayo. Other claimants arose for Lucas-Championnière, and some protested that the operation just grew.

The results in the radical cure of large umbilical and median ventral herinæ have been notoriously unfavourable. Coley found that nearly 50% recurred. Any procedure, therefore, which bids fair to improve this condition of things should command attention, and the operation with case-reports, brought before the Medical Society, attracted considerable interest. The present remarks have to deal with the question of priority. Was W. J. Mayo, of Rochester, Minn., the first to recommend the overlapping of the linea alba and the recti muscles in the cure of umbilical herinæ? First, it may be premised that Lucas-Championnière's method is something quite different; it consists in an inturning of the edges of the linea alba, after the manner of Lembert's intestinal suture. In the inguinial region his method, which has been cited as analogous to muscle-overlapping in umbilical hernia, consists in bringing the

muscle and external oblique aponeurosis of the upper lip of the wound down over the aponeurosis of the lower lip, thus producing an overlap. This method was published, as far as we can learn, in the early nineties. But the application of the principle to umbilical herinæ seems not to have been thought of even by Championnière himself or at any rate, carried out until 1895, when W. J. Mayo first employed this operation. It was not, however, until 1899 that Mayo published his cases and described the operation as a new one (Annals of Surgery, January, 1899). At that time he reported five cases, in three of which he had produced overlapping from side to side, in two from above, downward, that is, transversely. This article seems to have been the first upon the subject; and certainly to Mayo belongs the credit of priority. In a later publication (Annals of Surgery, August, 1901), he describes the operation again fully, and reports upon 19 cases, with good results, a number far in excess of those of any other operator who has put himself on record.

Independently of Mayo, and without knowledge of his work, three other surgeons have lately devised exactly, or almost exactly, the same operation. Sapiejko, of Kiew, operated on a woman on December 15, 1898, by this method, and published his description of it as a new thing in the Revue de Chirurgie, 1900, page 240. It may be said, in passing, that the great value of the method was well demonstrated in his cases, that of a 9-para, with an enormous hernia, allowing a diastasis of the recti of 22 cm., and 4 months pregnant. He overlapped the recti in their sheaths over a width of 15 cm., and immediate cure was perfect, the woman going on through a normal pregnancy; and the abdomen later "resembled that of a primipara."

Piccoli published in the Centralbl.f-Chir., January, 1900, the same operation, under the impression that he was bringing forward something new. He had first done the operation in August, 1899. He refers to Bonome, of Rome, as having independently done an almost identical operation in December, 1899. Finally, Blake (Med. Rec., May 25, 1901), of New York, publishes a description of the same operation, saying that he first thought of it independently in September, 1900.

Dr. Garrow informs us that he has carried out this method in umbilical herinæ for the past six or seven years, under the impression that he was not doing anything especially new, but simply applying Championnière's principle of the inguinal cure to that of the umbilical conditions. There remains yet one point. In the operation described by Dr. Elder at the recent meeting of the society, the sheaths of the

recti are opened, and the bare muscle is pulled over and sutured upon the bare muscle of the opposite sides, the two being then covered by simple edge to edge opposition of the anterior sheaths. In all the articles above quoted the sheaths were left unopened. This seems therefore to be a new point, a decided modification of the operation, not yet put in print. Dr. Elder saw it done by Blake in New York, who professed to have seen Mayo do it; and Dr. Keenan informs us that he carried it out, without knowing the origin of the idea, in a case at the Royal Victoria Hospital during the past few months.

AN OLD RIDDLE SOLVED.

Ever since the digestive power of the gastric, intestinal and pancreatic juices was known, one of the questions which has puzzled students of the digestive physiology was, "Why does not the stomach digest itself?" Probably all medical men, be they old or recent graduates, remember the discussions of this question in their text-books or by their teachers, and remember that neither authority was able to give a satisfactory answer to the riddle.

That the protection of the alimentary mucous membrane from digestion was not due to some mysterious power inherent in living tissue, as such, was shown by the experiments in which a living leg of a frog or a living ear of a rabbit was digested when placed in the stomach of a second living animal. One of the earlier physiologists thought he had found the answer for this riddle in the alkalinity of the blood, claiming that the acid gastric juices did not attack the lining cells of the stomach because the constant fresh supply of alkaline blood fluids prevented it from exercising its power. This explanation was quickly shown to be faulty, for immediately another physiologist pointed out that the alkaline pancreatic juice would be favoured in its digestive activity by the alkaline blood fluids. In most recent text-books on the physiology of digestion, to which we have had access, we find this question dealt with at greater or less length, but in none do we find any satisfactory answer.

Within the past year a young physiologist,* Weinland by name, working in Munich, has succeeded, as we believe, in solving this famous riddle. He has shown that there are present in the cells of the alimentary mucous membranes certain anti-substances, apparently strictly comparable to such anti-substances as antilysins, antitoxins, and so on, with which the modern immunity investigations have made us familiar. These antipepsins and antitrypsins prevent the action

* Zeitschift für Biologie, Vol. 43 and 44.

of the peptic and tryptic ferments, and by their presence in the cells of the stomach and intestine shield the same from the destructive action of the digestive secretions.

It is interesting to follow the course which Weinland pursued in the investigations which led him to the successful solving of the riddle which had perplexed so many any such eminent students. He started with an investigation of so uninteresting and humble an organism as the tape-worm, and succeeded in isolating from its tissues an antitrypsin which added to a mixture of fibrin and pancreatic juice prevented the digestion of the fibrin. He next isolated successively and successfully an antipepsin from the mucous membrane of the stomach and an antitrypsin from the mucous membrane of the intestine, which exhibited specific inhibitory action on their respective ferments. These antisubstances can be extracted with ease from the gastric and intestinal mucous membranes and can be precipitated from these solutions by various reagents. Thus far they have not been separated from proteids, and the presumption is that they are of a proteid nature.

NEITHER LAWFUL NOR EXPEDIENT.

Even in a palace life may be well lived; even in medical journalism there is room for reticence and decency. These qualities disappeared long ago from many of the text-books upon obstetrics and gynæcology, and in respect of the illustrations they are worthy of a high place in the category of obscene literature. In science there is nothing common or unclean. Its pale light casts no shadow, and in the austerity of its spirit one can sound the depths of human depravity without danger of defilement. But most writing upon subjects in which the moral element enters, is done merely in a pseudo-scientific spirit of lascivious curiosity, not far removed from pruriency and sensuality.

The change has come about in the past ten years, to be more precise since 1894, the year in which Dr. R. von Krafft-Ebbing's notable work upon contrary sexual instinct appeared. Whatever may be the merits of that book, it produced a filthy brood like unto itself in all respects, save in the scientific spirit which animated it. Those whose memories go back to the publication of that book, will remember the polite reserve with which it was received, and one journal, at least, declined even to mention it, till it should have been written in Latin or in some other terms suitable for such a subject.

Naturalia nunquam turpida: It is quite true that nature is never unclean, but many writers in medical journals are, and they deal with unclean subjects in an unclean way. It is no spirit of prudery we

protest that the limitation between candour and pruriency should be observed, that a certain reserve should be exercised in dealing with those perversions of the moral nature which make the human mind hateful to itself. There are certain subjects which are not a legitimate subject of conversation between decent and civilized men, which might be freely considered by a monkey and a dog, and we affirm that a like degree of reticence should be observed in writing. If a man have a great thing to say, let him say it, but let him hold his hand from writing lightly upon subjects which are not discussed by gentlemen when they meet together. These observations are directed against four journals, which in the past month have printed thirteen editorial articles and three "original communications" upon the subjects referred to.

The Ottawa Medico-Chirurgical Society, which is a union of the Ottawa Medical and Clinical Societies, has begun its corporate existence. Readers of this JOURNAL need not be surprised to receive accounts of the excellent work done in Ottawa.

Dr. Tunstall, of Vancouver, President-elect of the Canadian Medical Association, is making a journey through the eastern cities to develop the work of next year's meeting. He is receiving a cordial reception and general assurance of support in his efforts to make the meeting worthy of the West.

There is promise of trouble in the Kingston General Hospital. Dr. Haig, the superintendent, has resigned, and the committee propose placing a head nurse in charge. There is something anomalous about a staff of graduate physicians and surgeons serving under a lady-superintendent; indeed, the situation is not tolerable.

Another sign that the year is nearing its end is the appearance of visiting lists for 1904. Messrs. William Wood & Co. have issued their familiar book which will be a companion to many a physician on his daily rounds. Messrs. P. Blackiston's Son & Co. have also sent their list, which is now in the 53rd year of its publication.

Following out the policy endorsed by the members, the Council of the Medico-Chirurgical Society has the pleasant announcement to make that Dr. Osler will address the meeting at the end of December upon one of those subjects which are amenable to his broad handling. The meeting will hear him gladly. Dr. Harvey Cushing will read a

paper at a later date upon his experience of operation upon the Gasserian ganglion.

At the last examination for the "triple qualification" in Edinburgh, five graduates of McGill presented themselves, and all five were successful. Their names are T. F. Bayfield, '01; Herbert C. Featherston, '02; William Ness, '02; J. Howard Munroe, '03; H. E. Munroe, '03. Dr. Howard Munroe won "distinction," a term which signifies honours. It is not common for all the candidates from one school to attain the qualification.

The difference which has existed for a long time between McGill University and the Educational Committee of the Province of Ontario, is in a fair way of being adjusted. The contention turned upon the question as to the level of efficiency reached by McGill honour students at the end of their academic course, and their qualification for posts in the Ontario schools. Many of the students come from that province and upon their return, find themselves debarred from employment. Whatever may have been the grounds for their exclusion in the past, whether it lay in an inferior qualification or as some have thought in a provincialism of spirit, to-day there is none, and another meeting will probably see the matter adjusted. We in Quebec have gone a long way in removing the differences between French and English, and this coming together with Ontario is another advance towards educational harmony in Canada.

Reviews and Notices of Books.

A Dictionary of Medical Science. By Robert Dunglison, M.D., LL.D. Twenty-Third Edition; Revised by Thomas L. Stedman. Lea Brothers & Co., Philadelphia and New York, 1903.

The American Illustrated Medical Dictionary. By W. A. Newman Dorland, A.M., M.D. Third Edition, 800 pages, flexible leather. Price, $4.50. W. B. Saunders & Co., 1903. Canadian Agents, J. A. Carveth & Co., Toronto.

The American Pocket Medical Dictionary. By W. A. Newman Dorland, A.M., M.D. Fourth Edition, 556 pages, flexible leather, $1.00. W. B. Saunders & Co.

A medical dictionary, if properly used, is of the greatest value to a writer upon medical subjects. It serves to define his thought and to

keep his words close to it, so that his idea may reveal itself in all its richness or in its poverty. If improperly used, a dictionary serves to supply hard words to make obscure ideas more obscure, but that is not the fault of the book. Dunglison's dictionary is now in its twenty-third edition, and has held its own from a time far beyond the memory of any man now living. The present revision is by Dr. Thomas L. Stedman; he has maintained the traditions of the book, and at the same time has brought it into harmony with the actual condition of the medical and allied sciences in these later days.

The American Illustrated Dictionary is in the third edition and fulfils every condition demanded by such a work of reference. The definition is close and accurate, the words are easily found and the illustrations are helpful.

The American Pocket Medical Dictionary is also by Dr. Dorland, and quite ample for any ordinary purpose. If it were not for the two larger works before mentioned, one could not imagine a more complete dictionary.

NERVOUS AND MENTAL DISEASES. By ARCHIBALD CHURCH, M.D., Chicago, and Frederick Peterson, M.D., President of the State Commission in Lunacy, New York. 4th Ed. W. B. Saunders & Company, Philadelphia, 1903. Canadian Agents; J. A. Carveth & Co., Toronto.

This work, the fourth edition of which is now before the public, is one that can be read from cover to cover with pleasure and profit. While purporting to be only a text-book written for medical students and general practitioners, to all of whom we most cordially commend it, a perusal of its pages will not come amiss to those of wider knowledge. One of the prominent features of the volume is its directness and definiteness of statement, the clinical descriptions, while brief, being strikingly graphic and life-like pen-pictures. The illustrations are clear and the letter-press is excellent.

In Dr. Church's portion of the work there are several additions to previous editions, the chief of which are; the most recent views with regard to the question of the healing of nerves; the introduction of sections on Intermittent limping and on Herpes zoster, which is now definitely known to depend upon a lesion of the posterior root ganglia, and hence may be considered essentially a nervous disorder; a description of that form of epilepsy marked by myoclonus and supplying the so-called Association or Combination Disease; and an elaboration of the value of astereognosis and of Kernig's sign in their diagnostic relations.

In a text-book, of course, one cannot expect a full discussion of disorders which, when dealt with at length, require monographs for each, but in treating of "Disorders of the Brain Proper," Dr. Church lays us under special obligations in having avoided superfluous details while conveying a vivid impression of his experience. We must also refer in terms of grateful appreciation to the practical and scientific spirit which is made manifest in his remarks on treatment.

To the specialist it will be a matter of rejoicing that Dr. Peterson has seen fit to introduce such an excellent review of the recent problems of psychiatry as voiced by Kraepelin, Ziehen, Warnicke, and others of the German schools, nor could the task have been performed by an abler pen than that of Dr. Adolf Meyer, director of the Pathological Institute of the New York State hospitals. It is questionable, however, to our mind, whether such a review is not out of place in what purports to be a text-book for students, who are already overburdened with the multitude of subjects demanded by this latter-day medical curriculum, and it is to be hoped that examiners will not deem it absolutely necessary to test them too severely on a knowledge of so abstruse a subject.

The sections dealing with the treatment of insanity are exceedingly valuable and possess the merit of being thoroughly practicable. Much stress is laid, and rightly so, on the need of increasing and extending the facilities for the early treatment of those mentally afflicted, and the author indicates the lines of progress in this direction as : (1) the opening for the insane of special reception wards or pavilions in general hospitals; (2) the establishment of psychopathic hospitals in large cities; (3) the creation of outdoor departments in connection with asylums situated in densely populous districts.

Perhaps the best chapters in the second half of the work are to be found in Dr. Peterson's especial field, epilepsy, idiocy and imbecility. These are full and extremely valuable, as are also his remarks on the stigmata of degeneration.

Taken as a whole, the work should meet with a reception no less favourable than the preceding editions which have been so soon exhausted. Bearing on each page, as it does, the impress of practical knowledge and experience, its teachings have all the merit of lucidity of style and fulness in the treatment of the whole field of neurology. We know of no work in the English language that we can more strongly recommend both to the student and the general practitioner.

T. J. W. B.

A Treatise on Orthopædic Surgery. By Royal Whitman, M.D. Second edition, 847 pages, 507 engravings; Lea Brothers & Co.

The second edition of Whitman's Orthopædic Surgery which is now published, is an enlarged and revised edition of the original work which was published in 1901. Like the former edition it is most meritorious; it is rich with valuable statistics prepared from the records of the cases treated at the New York Hospital for the relief of the ruptured and crippled, and yet with all its merits it is a little disappointing. Orthopædic-surgeons have already so excellent a text-book in the work of Bradford and Lovett, of Boston, that the writing of another book on this branch of surgery may seem to have been almost unnecessary, unless the writer were prepared to treat the work of his American confreres from a critical standpoint, examining and proving it from an impartial point of view, and with those rare opportunities for experience which are, perhaps, offered to the surgeons of the Ruptured and Crippled Hospital alone.

Although the frequent use of the ego in a literary production has its disadvantages, the treatment of any subject from a personal point of view increases the interest taken in such dissertation, as, for instance, with what interest would the practitioner of orthopædic surgery have read a criticism by Whitman on the treatment of Pott's disease, and its most annoying resultant paraplegia, by hyper-extension directed to the gradual reduction of the deformity. Whitman felt the necessity of straightening or extending the spine so far back as 1892, when he wrote, "our efforts should be directed to straightening the entire spine above and below, and thus to limit the kyphosis to the actual extent of the disease"; and again in 1893 he wrote, "the object of treatment is the prevention of deformity not only because the effect of treatment is estimated by the degree of ultimate deformity rather than by the survival of the patient, but because deformity itself, after complete recovery from constitutional and local disease, by its distortion and compression of vital organs, is a constant source of weakness and danger." Yet in this, the second edition of his work, published, indeed, over ten years after these statements were made, the author does not furnish his readers with any clear or definite estimate of the advantages of the methods for the gradual reduction of deformity, which methods have been in use for over five years, although on several occasions he refers to the efficacy of such forms of treatment, and although as late as 1901, he wrote, "the importance of checking the destructive process has been emphasized and the routine of treatment is likely to be more or less modified in the future to meet this

requirement." With what interest also would the surgeon, taught by these words to look forward to a modification of the older methods of treatment, have studied statistics comparing, we shall say, cases of Pott's disease of the lower dorsal vertebræ treated after the methods of Goldthwait with those treated by Sayer's method.

Again in the treatment of Gonorrhœal Arthritis, whilst Whitman refers to the most advanced treatment of certain forms of these arthritides, such as has been outlined by O'Conor, of Buenos Ayres, he omits even to mention that the treatment of the arthritis should be primarily the treatment of the initial focus of infection. His dissertation on Osteo-Arthritis of the spine may also be accused of being too brief for the importance with which these affections are considered by surgeons interested in affections of the spine.

The chapter on Congenital Dislocation at the Hip is well worth reading. It is a longer, clearer and better illustrated study of this deformity than was seen in the previous edition, and whilst it reminds one of the able work already performed by this surgeon on the study and reduction of such deformities, it also demonstrated the increased interest taken in this condition since the visit of Lorenz to this continent. On Coxa Vara the work is again most interesting. The ability to interest one in this subject might, of course, be expected from Whitman who, perhaps, of all American surgeons has devoted the most time to the consideration of this condition. Ten lines are devoted to the discussion of the ætiology of anterior poliomyelitis; that disease which causes so many deformities due to paralyses.

The four last chapters are devoted to the study of the foot and its deformities. Again, these studies are beyond reproach as could only be expected of a review by him who has devoted such great labour to the study and treatment of the deformities of this member; but this statement only bears out our original regret that the writer has not treated orthopædic-surgery as he has found it,—from a personal point of view.

A. M. F.

MODERN SURGERY: GENERAL AND OPERATIVE. By J. CHALMERS DACOSTA, M.D. 4th Edition, W. B. Saunders & Co., Philadelphia, 1903. Canadian Agents, J. A. Carveth & Co., Toronto.

The fact that this work has reached its fourth edition is sufficient recommendation as to its utility. It has now become a large work on surgery, running to over 1,000 pages. Although used chiefly as a text-book, it is not recommended to students and general practitioners especially, but has the simple title given above. The poor student

now has few hand-books. The science of medicine has so extended, and so much is deemed necessary he should know, that the books in surgery especially, cannot be held in the hand on account of their weight and size and need the support of a strong table. Dr. DaCosta has succeeded in keeping his surgery well up to date, and diseases of the pancreas and spleen occupy well deserved space. Many operations of many men are described, but none very fully except the newer ones, and unless the operator has had considerable experience he would be unable to satisfactorily perform from the description given some of the operations, *e.g.* Kraske's excision of the rectum, closure of cleft palate, nephrorrhaphy, etc. Operations on the intestines and stomach are very fully described; no one is specially recommended, and no results or after treatment are given. The text bristles with names of authorities and others, and students will be pleased to know how many celebrated men there are who have stamped themselves by name on the tablets of surgical science. We are always glad to know who recommends certain instruments in certain operations, and also how they modify certain operations. We are surprised to see that amongst this array of names, Mr. Butlin, who has written much and is especially known by his work on "The Tongue" and "The Operative Treatment of Malignant Diseases," is entirely ignored. American surgeons naturally receive much attention.

The sections on the nerves and brain are very full, up to date, and well illustrated. It is easy to find fault, and no one man now can be expected to write a book on surgery which will not be open to criticism. On the whole, however, the work has much to recommend it, is well written and will be valuable as a text-book for students, but it might be much more impressive if the author were not so fond of quoting authorities and gave his own opinion more often as to the value of many of the operations and procedures described.

A Text-Book of Operative Surgery. Covering the Surgical Anatomy and Operative Technic involved in the Operations of General Surgery, Written for Students and Practitioners, by Warren Stone Bickham, Phar. M., M.D. W. B. Saunders & Co., Philadelphia, New York and London, 1903, pp. 984. Canadian Agents, J. A. Carveth & Co., Toronto.

Although this book is said to be written for practitioners, it cannot be said to fill a long felt want. It is rather a disappointment, because too much has been attempted. It is neither a good work on Surgical Anatomy, nor is it a very useful treatise on Operative Surgery. Surface anatomy is also dealt with, but in such a way as to interest the

reader but little, being a bare recital of facts given in the baldest manner; no life is put into the dry bones. In the surgical anatomy there is too much cataloguing, too many sections with words in large capitals, and long lists of names which confuse and give little information to the reader. In describing operations, such as removal of breast, excision of jaw, etc., it is like reading the answer to a dissection question. In all the operations on the jaws, mouth, etc., no mention is made of operating with head in the dependent position; even in excision of the upper jaw preliminary tracheotomy is advised. The best part of the book is that on the surgery of the intestines and the illustrations of the various intestinal operations are excellent and easily understood.

All the modern operations are described and many that have been suggested. Many operations are described fairly well, and reference to such description will tend to refresh the memory. Some operations seldom performed are described at great length, and others quite common are given but little space; eight pages are devoted to anterior and posterior mediastinal thoracotomy, and only two to thyroidectomy and two to excision of the knee joint, including illustrations. Ligature of arteries is described in one hundred and fifteen pages, and the treatment of aneurysm takes up 4½ pages, of which 3½ are devoted to a description of Mata's method, with illustrations. Nerve surgery is well illustrated and so is the surgery of the tendons.

The book is not made attractive by the style; it is difficult to read and with its 1,000 pages is bulky and heavy. The description of surgical operations is not full enough for the surgeon and for the practitioner the work is too academic. The student will find this work useful for examination purposes.

THE PRACTICAL MEDICINE SERIES. Vol. IX. Physiology, Bacteriology, Pathology, Anatomy, Dictionary. Edited by W. A. EVANS, M.D., ADOLPH GEHRMAN, M.D., and WILLIAM HEALY, M.D. Chicago Year Book, Published August, 1903. Price of this volume, $1.50 (of the series, $7.50).

If the other ten volumes of this series are as sound and interesting as that under review, then most certainly this new year-book is to be highly commended. The idea is novel and appears to us eminently practical, namely, to supply for the use of the general practitioner who wishes to keep abreast of medical progress, an account of the best recent work likely to appeal to him in the different branches of medicine, and this in a form not so epitomized as to be indigestible nor, on the other hand, so full and exhaustive as to be beyond the limits of his leisure moments to master; not in one or two bulky volumes so large that they can only

repose comfortably upon the book shelf, but small enough to be slipped into the coat pocket as each of the ten monthly instalments makes its appearance, and then used to beguile odd moments on the rounds, the print being of such a size that reading is easy.

In this volume an account of the year's physiology, for instance, is far from being as full as would satisfy the physiologist, whilst the notes upon hygiene would be found painfully meagre by the Board of Health official, yet it seems to us that the authors have in both cases managed to record those advances which are of special interest from the point of view of the practitioner. Nor, taking all things into consideration, is it to be regarded as other than a wise policy that American researches are given special prominence; these are better calculated to interest the American practitioner who, further, if interested in them, can with less difficulty consult the originals. We use the term American in the larger sense observing with pleasure that more than one Montreal investigation receives adequate notice. The work is issued from Chicago but, even granting that such work obtains more special notice, we are particularly struck by the number of sound contributions to pathology, bacteriology and hygiene which have emanated from the laboratories there during the last eighteen months.

The Practical Medicine Series of Year Books. Vol. X., Skin and Venereal Diseases. Nervous and Mental Diseases. Edited by W. L. Baum, M.D., and Hugh T. Patrick, M.D., September, 1903, Year Book Publishers, Chicago.

This is the concluding volume of the series for the present year. It contains a fair representation of the work done during the latter half of the past and the first half of the present year in these departments. The space devoted to each of the articles reviewed is necessarily very much condensed, but the editors have endeavoured to cull the important parts. There are a few illustrations.

A Text-book of Clinical Anatomy. For Students and Practitioners. By Daniel N. Eisendrath, A.B., M.D., Clinical Professor of Anatomy in the Medical Department of the University of Illinois; attending surgeon to the Cook County Hospital, Chicago, etc. Handsome octavo of 515 pages, beautifully illustrated with 153 illustrations, a number in colors. Philadelphia, New York, London: W. B. Saunders & Company, 1903. Cloth, $5.00 net; sheep or half morocco, $6.00 net.

The phrase "beautifully illustrated" upon the title page of this book invites attention to this important part of any work on anatomy. The illustrations are nearly all photographs, more or less

retouched, and many of them covered by the lines of diagrams. This union of the photograph with the diagrams, produces a hybrid that has the merits of neither and the faults of both methods of illustration; the photograph confuses the clearness and simplicity that makes a diagram valuable, and the superimprosed lines take away from the reality and accuracy that is supposed to characterize an actual photograph. It has the additional disadvantage of requiring for clear reproduction a highly finished glossy paper very trying to the eyes.

THE AFTER TREATMENT OF OPERATIONS. By P. LOCKHART MUMMERY, F.R.C.S., Eng. London, Ballière, Tindall & Cox, 1903; pp. 221, 29 illustrations; price, 5s.

The appearance of this volume is an indication of the need for a more detailed account of the treatment required after operations than can be admitted in a work of general surgery. The book is full of good material, to which the surgeon himself may go as well as those who have the more immediate care of the case. There is many a warning in the record of unexpected conditions that may arise.

ANNUAL REPORT OF THE SUPERVISING SURGEON GENERAL OF THE MARINE HOSPITAL SERVICE OF THE UNITED STATES, for the year 1900 and 1901.

TRANSACTIONS OF THE CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS, Vol. VI., 1903.

Correspondence.

The Montreal Medical Journal.

A recent editorial in this journal on clinical teaching, discussed the desirability and practicability of the plan, so strongly advocated by Professor Barker, of putting the clinical chairs of medicine on a basis comparable with that on which the theoretical chairs, such as those of physiology, pathology, etc., now stand in most of the leading medical faculties. Professor Barker "urges the need of a hospital primarily devoted to teaching, whose departmental chiefs engage in no work outside such institution, whose emoluments therefrom, adequately secure them a comfortable existence obviating the necessity of any kind of private practice."

The writer of your editorial, while granting the desirability of such an arrangement, were it possible to secure the necessary endowments and "the co-operation of departmental chiefs whose *genius*, wide knowledge, zeal and personality, would carry on efficiently the required labour," doubts that it would be possible in Montreal to do so. In his

opinion there would be necessary for the development of such a scheme at least one million dollars as endowment for six clinical chairs, a hospital costing one or two million dollars with an endowment of two million dollars.

It has seemed to one who has read this editorial with interest, that the difficulties of carrying out such a plan as Professor Barker advocates, are considerably exaggerated by your editorial writer. At the start he considers that less than six endowed clinical chairs would be inadequate and calls for one million dollars endowment for the same. Such an endowment should bring in an income of about fifty thousand dollars per annum, therefore, eighty-five hundred would be the figure of each yearly stipend. I do not consider that such a sum is a greater compensation than fit occupants of such positions should receive, but remember that the incumbents of theoretical chairs in the medical faculties of this continent are receiving, in the vast majority of instances, stipends which do not represent one-half of eighty-five hundred dollars, and I believe that the majority of the professors of anatomy, physiology and other theoretical subjects, possess the "wide knowledge, zeal and personality" necessary "to carry on efficiently the required labour." But few of them lay claim to the possession of genius, though the greater number possess something which is but little less valuable to the teacher, that is, an interest in and love for their work which has led them to follow careers which shut to them the avenues wherein large pecuniary rewards are found.

Is the material which goes to make our foremost clinical men so different from that of which physiologists and pathologists are made that they would always choose the careers which promise the greater material rewards? Is it not rather true that the man with the clinical bent has in the past had no choice? In order to follow his chosen calling, has he not been forced to follow it along the lines which lead perforce, in the struggle for existence, to the devotion of a too large portion of his time and energies to the work which provides the necessary means of subsistence? Who that has seen the devotion of our surgeons and physicians, to study, to teaching, to hospital work, to private patients who cannot or will not pay for services rendered, can doubt that many of them would have made and still would make their choice of such careers as endowed clinical chairs would open to them, even though these chairs would give them incomes of not more than five thousand per annum?

I would question, too, the statement in your editorial that less than six such chairs would prove inadequate. In our medical curriculum four-fifths of the clinical teaching is devoted to giving our students an opportunity to learn the essentials of the practice of medicine, of

surgery, and of gynæcology and obstetrics. Ophthalmology, laryngology, psychiatry and other clinical branches, important though they be, play a comparatively small role in the undergraduate curriculum, and therefore endowed chairs in these branches do not seem to me to be so imperative.

A hospital, large enough to carry on the work as is proposed in the plan we are considering, would certainly cost between one and two million dollars and would require an endowment of very considerable size, but not so large a one as may at first glance appear. Such an institution would have a source of income not generally possessed by our hospitals, in the fees from private patients, for private patients would still pay their fees, not to the surgeons or physicians but to the hospital. Montreal is already, in the opinion of most well informed individuals, sufficiently well supplied with general hospitals. The building of another large general hospital in the near future could hardly be of advantage to the community, nor would it be necessary for the development of such an institution as we have been considering.

The institutions exist, and one at least is sufficiently endowed. If the university authorities and the governors of the hospitals should become persuaded of the desirability of adopting some such plan of development, I believe that the financial obstacles claimed to be so momentous in the editorial which has occasioned this letter, would be found to be always disappearing ones. The difficulties would be found to arise almost entirely from considerations of an individual nature. No institution would feel inclined to turn off suddenly, attending physicians and surgeons who had for years given to it their very best efforts, nor could it expect a physician or surgeon, already enjoying a large income from the practice of his profession, to joyfully relinquish this for a stipend one-quarter or one-half as large. Such a change of policy, if it is to come, must come slowly and gradually. I believe, however, that a beginning could be made in the near future. Such an institution, in deference to local conditions, would necessarily be evolved slowly and could not be created in a day or a year.

That men, eminently fitted to fill successfully the chairs proposed, and willing, nay desirous, of entering into such careers, could be found without difficulty, is my belief. The chief embarrassment in this phase of the question would, I think, come from difficulty in choosing among the eligible candidates. I am not blind to the fact that the successful development of so radical a change in the policy of a teaching institution would meet with many difficulties not easily forseen, and which tion would meet with many difficulties not easily foreseen, which when met could be overcome only by exercise of the greatest care and wisdom.

KLINOS.

Medical News.

MONTREAL GENERAL HOSPITAL.

The report of the Montreal General Hospital for the month of October is as follows: Admissions to the wards, 250; discharged, 229; deaths, 12. The average daily sick was 190, including a number of emergency cases. There were 2,532 consultations in the outdoor department. The largest number for any one day was 200. The number of ambulance calls for the month was 124. The average visitors to patients was 180. The typhoid fever cases have decreased to 24.

The regular quarterly meeting of the Board of Governors of the Montreal General Hospital was held on the 17th November. The revenue for the quarter ending September 30th, amounted to $16,204, and the expenditure to $27,556. The revenue for the nine months ending September 30th, including unappropriated legacies, amounted to $90,839, and the expenditure for the nine months to $77,724, an increase in expenditure over the same period of 1902 of $3,758.

The medical superintendent's report showed that during the quarter 973 patients were treated to a conclusion, as against 743 in the corresponding quarter of 1902. There were 55 deaths, of which 24 occurred within three days of admission, making the mortality rate for ordinary hospital cases 3.1 per cent. The aggregate number of hospital days was 17.428. The average detention per patient was 21.9 days, as against 17,771 hospital days, and an average detention of 23.8 days for the corresponding quarter of 1902. The ambulance responded to 379 calls, as compared with 320 in the corresponding quarter of 1902.

NOTRE DAME HOSPITAL.

The new Notre Dame Hospital, on Sherbrooke street, between Champlain and Maisonneuve streets, in front of Lafontaine Park, is to be an imposing structure, four storeys high, built in the shape of a cross, with the main entrance on Sherbrooke street.

On the ground floor will be placed the dynamos, steam apparatus, coal bins, with engineers, electricians' rooms, also those of the servants. Here will be situated the kitchen, bakery and other workshops, hall of instruction, laundry, etc.

The first floor will be occupied by the sterilization, anæsthetic, opthalmological and gynæcological halls, besides an amphitheatre and a room for patients after operations. In addition there will be baths, private rooms and a pharmacy.

The second and third flats are similar to the first, each containing

operating rooms for men, women and children, and quarters for the sisters and nurses. The chapel is to be situated on the third floor near the private rooms. On Sherbrooke street is to be constructed a handsome terrace and a roof garden for the use of convalescents.

The contagious diseases section will be built first, on the Maisonneuve side of the street. It will be connected with the other portion by a tunnel. The sisters' and attendants' pavilions will be attached to the contagious section by large covered corridors.

ROYAL VICTORIA HOSPITAL.

The following is the monthly report ending October 31st, 1903:—Patients in hospital at last report, 215; admitted during month, 252; discharged, 266; died, 8; patients in hospital at this date, 193; medical, 76; surgical, 111; ophthalmological, 28; gynæcological, 22; laryngological, 15; out-door department, 2,082; ambulance calls, 64; daily average, 207.

WESTERN HOSPITAL.

Report for October:—Patients admitted, 50; discharged, 55; died, 0. Out-door Department:—Total number of consultations, 678; medical, 210; surgical, 87; gynæcological, 145; eye and ear, 47; nose and throat, 107; skin, 25; genito-urinary, 57.

The National Sanitarium Association has enlarged its work in Muskoka by the establishment of the Muskoka Cottage Sanitarium for paying patients. The sanitarium has accommodation for 75 patients, and the Free Hospital for Consumptives, established within a couple of miles of the sanitarium, has also accommodation for 75 patients. To still further extend the work of the association, another free hospital, providing accommodation for 50 patients, is now nearing completion about five miles from Toronto. In connection with this hospital there are some forty acres of land, and when completed this will represent an expenditure of over $25,000. Within the year the intention is to spend another $25,000—$50,000 altogether—on the Toronto institution.

The Directors of the Guelph General Hospital report for the year ending Sept. 30th, 1903, that the number of patients in the hospital October 1st, 1902, was 57; admitted during the year, 671; births, 42; total number of patients for the year, 770; number of patients discharged during the year, 675; deaths 29; remaining in hospital, 66; total number of days of all patients in the hospital, 23.943; those paying

over $3 per week, 48.39; number of days of all patients, free and under $3 per week, 19.104; number of males, 373; females, 397; total cash receipts from all sources, $17,221.47; total expenditure, $18,064, leaving an overdraft on the bank of $842.93.

At a meeting of the Faculty of Medicine of McGill University, Dr. Klotz, of Ottawa, was recommended to the governors for appointment as Governors' Fellow in Pathology at McGill. Dr. Klotz is a graduate of Toronto University, and for some time past has been conducting researches in bacteriology at the Ottawa Isolation Hospital. The appointment will officially be made at the next meeting of the board of governors.

The new hospital in Moncton was opened on the 11th November, with due formality. The total cost of the building was in the vicinity of $25,000, and of this sum $2,500 remains to be paid. There is about $1,100 in uncollected subscriptions and the county council have promised a grant of $1,000. The hospital is one of the finest in the Maritime provinces, and contains all the essentials of a first class institution.

The returns received at the Ontario Health Office, show a largely decreased number of deaths from consumption for last year compared with some years past. The deaths from consumption last year, 2,694, show a decrease of 549, compared with 1901, and 890, compared with 1900, when the deaths totalled 3,484. The figures for the past six years are as follows: 1897, 3,154; 1898, 3,291; 1899, 3,405; 1900, 3,484; 1901, 2,243; 1902, 2,694; total, 19,371.

The annual report of the Ross Memorial Hospital, Lindsay, shows that there were admitted during the ten months, 148 patients, of whom 130 were discharged, and five were removed by death, leaving 13 in the hospital on September 30th. The collective days' stay of adult patients was 3,451, showing the average days' stay of patients to be 23 days per patient. Taking the number of days' stay of patients, 3,451, and the total cost for maintenance, $5,044.60, the average cost per day was $1.46.

Dr. John C. Mitchell, of the Toronto Asylum staff, has been appointed by the Ontario Government medical superintendent of the new Provincial Epileptic Hospital now under course of erection at Woodstock. Dr. Mitchell has been connected with the Toronto Asylum for over two years, and is a Past President of the Ontario Medical Association.

At the annual meeting of the Galt Board of Health, held 18th November, the Local Health Officer reported the town to be in a healthy condition. During the year there were six cases of scarlet fever and three cases of diphtheria, with no deaths. Out of the 28 cases of typhoid there were only two deaths. There were 86 cases of smallpox with six deaths. The death rate per thousand was 14.5.

E. Muir, of the Pharmaceutical Assocation, has laid charges in the Police Court against a number of Quebec physicians who are accused of giving prescriptions to be filled by unlicensed druggists or unregistered drug clerks, and also against several druggists for selling poisons to the public contrary to the provisions of the Pharmacy Act, and for permitting unqualified clerks to fill prescriptions.

The organization meeting of the new Board of Governors of the Brockville General Hospital was held on the 10th November, with a large attendance. The following officers were elected: President, Judge Reynolds; Vice-President, L. Patton; Treasurer, D. B. Jones; Secretary, J. A. Hutcheson; Committee of Management, Judge McDonald, F. E. Fairbairn, A. D. McDougall, D. B. Jones.

Smiths Falls is to have a hospital. The Archbishop of Kingston has purchased suitable property, and a new building will be erected next year. The Sisters of Providence will be placed in charge, but the hospital will be open to all creeds and nationalities.

The total number of patients treated in the Winnipeg General Hospital during the week ending October 31, was 239, of whom 140 were men, 72 women and 27 children. Seventy-one out patients were also treated.

The next examination for sanitary inspectors, held by the Canadian branch of the Sanitary Institute, of London, takes place on December 1.

The new annex to the Brandon General Hospital was completely wrecked by a storm of wind. The damage was very great, but fortunately no lives were lost.

Dr. D. A. Shirres has been appointed neurologist at the Montreal General Hospital.

Dr. R. Logan, formerly of London, died in Detroit after a surgical operation; he was 70 years old.

Dr. James A. E. Steeves, of St. John, N.B., died in Arizona, where he had gone for his health. Dr. Steeves had been married only a few weeks.

Retrospect of Current Literature.

SURGERY.

UNDER THE CHARGE OF GEORGE E. ARMSTRONG.

Hallux Valgus.

JOHN G. SHELDON, M.D., "Hallux Valgus." *Medical Record*, Oct. 31, 1903.

The remarks are based upon some thirty cases. The operation depends upon the degree of deformity. In mild cases splitting and division of the extensor proprius hallucis and extensor brevis digitorum tendons, as for lengthening, without suturing of the tendons so divided is recommended. Excision of the head of the first metatarsal gave good results, but the procedure advocated in all well marked cases is excision of the inner half or two-thirds of the head of the first metatarsal, with division of tendons, as for mild cases. The toe is held in position by a plantar splint and adhesive plaster. The advantages claimed are: "A movable joint is assured; there is no shortening of the great toe; the deformity is completely corrected; if the bone is affected the abnormal part is removed; the space resulting from the removal of the bone heals by the blood-clot process; the extensor tendons are so lengthened that they do not tend to reproduce the deformity."

Traumatic Separation of the Lower Epiphysis of the Humerus.

GILBERT GEOFFREY COTTAM, M.D., "Traumatic Separation of the Lower Epiphysis of the Humerus and their Treatment by the Extended Position, with Report of Two Cases." *Medical Record*, November 14, 1903.

This brings up for discussion a very live question as to what is the best position for the arm in the injury. A short review, giving the opinion of nine authorities is added; seven are advocates of the flexed position, though they do not agree regarding the angle, the majority preferring it to be a right angle, while two favor the obtuse. In the two cases reported the extended position gave a perfect result, and any form of treatment that can give a perfect result in this injury is well

worth serious consideration. It would appear, however, that no set rule can be laid down for the treatment of this condition, but that better results are to be obtained by treating every case on its own merits, and that position selected which accomplishes perfect reduction and fixation of the fragments.

Acute Intestinal Obstruction and Necrosis of the Bowel caused by a Gall Stone.

F. L. Strauss, M.D., "Acute Intestinal Obstruction and Necrosis of the Bowel caused by a Gall Stone." *New York and Philadelphia Medical Record,* November 14, 1903.

The report of the case is of interest on account of the absence of any previous history pointing to gall-stones. The *post-mortem* showed several stones in the gall-bladder, one obstructing (?) the common duct, one in the head of the pancreas, and the one in the jejunum causing the obstruction.

Surgical Treatment of Intestinal Perforation in Typhoid Fever.

Donald Amour, M.B., M.R.C.P., Lond.. F.R.C.S., Eng., "The Surgical Treatment of Intestinal Perforation in Typhoid Fever." *The Lancet,* October 3, 1903.

Inasmuch as perforation is the most fatal of all complications in typhoid fever the subject is one of very great interest, and the writer has put before us in a concise paper the careful analysis of the most important communications on this subject which have been written during the past five or six years.

He puts the percentage of perforation at from 1-5. As regards sex it is three times more frequent in men than in women; it is very rare in children, and reaches its highest between 20-30 (39.8 per cent.). The great majority of cases perforate during the third week, and the seat of perforation may be said to be in the ileum in about 81.4 per cent. In speaking of the symptoms of perforation, in most cases it was found that the actual perforation was antedated by symptoms which should serve to warn the attending physician and suggest the probability of a pre-perforative stage. "The symptoms most often complained of by the patients are various degrees of abdominal pain and tenderness, either local or general." Another point emphasized is that abdominal pain, especially if localized, is not a frequent complaint in typhoid fever, and hence its importance when present. "Hæmorrhage should also put us on our guard." As for the symptoms of perforation itself the most constant are "sudden abdominal pain, increasing in intensity and recurring in paroxysms, localized muscular spasm and tenderness accompanying the pain and becoming general, distension, a rapid,

feeble pulse, with signs of collapse, and the appearance of leucocytosis." The blood must be examined frequently for leucocytosis to be of much value. Attention is drawn to perforation of the appendix which occurred in 3 per cent. of Fitz's cases. Statistics show a most encouraging gain in the number of recoveries, Keen's 150 cases giving 22.7 per cent. It would appear that between 15-25 years is the most unfavourable time at which to operate, and males give a much higher mortality rate than females. The writer prefers invagination by suturing without paring the edges and includes all the thinned area in his sutures. "Early operation and rapidity of operation, without, however, sacrificing thoroughness, are the two main essentials for success."

Timely Operation in Primary Appendicitis.

William H. Walthen, A.M., M.D., LL.D. "Timely Operation in Primary Appendicitis." *Medical News*, October 24, 1903.

By timely operation is meant before the disease has extended beyond the appendix, or complications have arisen, and the writer strongly believes it should be performed in every primary case. This plan gives best results, and it is also claimed that operation at this time is as safe as in the interval. It is considered unwise to wait for the attack to subside, as one can never foretell the course the disease may run, and "it can no longer be claimed that amelioration of symptoms in acute appendicitis usually contra-indicates surgical interference, for dangerous pathologic conditions may progress rapidly under apparently favourable conditions." In cases which have gone beyond the timely stage the writer believes we would obtain better results in many cases if we waited for the abscess to be walled off. This position seems untenable after the radical measure advocated above, and the reasons given appear inadequate and inconsistent. With reference to the connection between appendicitis in the female and pelvic abscess, it has been the writer's experience that when the appendix was involved secondarily to the pyosalpinx there was usually no necrosis, gangrene perforations or pus formation. A pyosalpinx or tube-ovarian abscess may be caused by a suppurative appendicitis, though this is not frequent.

MEDICINE.

UNDER THE CHARGE OF JAMES STEWART, F. G. FINLEY H. A. LAFLEUR AND W. F. HAMILTON.

Edward W. Adams, M.D. "The Results of Organotherapy in Addison's Disease." *Pract.*, October, 1903.

This study is based on a record of 97 cases collected from the literature, and in addition 6 unpublished cases.

The cases are classified in four groups.

Class I. Cases in which alarming or fatal results were presumably or possibly due to the treatment.

Class II. Cases uninfluenced by, or deriving but doubtful benefit from the organotherapy.

Class III. Cases in which marked improvement coincided with the treatment.

Class IV. Cases in which permanent benefit (? cures), accrued apparently as a result of treatment, no case being included which had not been under observation for at least a year.

Class I (seven cases). The experience with suprarenal grafts is unfavourable, and in three cases this treatment was probably responsible for a fatal issue. Sudden deaths occurred during the administration of the remedy in other cases, but this mode of termination is frequent in the disease under any circumstances, and is not always to be attributed to the suprarenal retract. Severe cardiac symptoms may, however, supervene and demand the cessation of the remedy.

Class II. (43 cases). This class forms a large and discouraging group. Omitting cases where it was employed for a very brief period or with the patient practically moribund, it probably represents the usual experience of organotherapy. The number of cases ought doubtless to be greatly increased by a large number of cases regarded as being unworthy of publication.

Class III. (31 cases), and *class IV.*, 16 cases, form the encouraging portions of the treatment. The writer points out the necessity of caution in drawing conclusions from these results. Isolated instances of recovery are recorded before the introduction of organotherapy. Again remarkable remissions of the disease are not infrequent, and rest in bed is sometimes accompanied by marked benefit.

Of the forty-seven cases in classes III. and IV., 29 showed marked improvement, and 14 permanent benefit. Improvement was shown in waning of pigmentation, and sometimes in its almost complete disappearance. Asthenia and circulatory feebleness were also relieved.

In spite of the long list of failures, it must be admitted that organotherapy has been of real service in Addison's disease. It is impossible to fully classify cases in which benefit has resulted, but the result of post-mortem examination suggest that improvement is more likely to occur where the tubercular process is a chronic sclerosing one, and where the other organs are fairly healthy.

The *Practitioner* devotes its July number to a discussion on gout.

Dr. Futcher, of Baltimore, contributes an interesting article on the "Occurrence of Gout in the United States." The disease is much

more prevalent here than is generally admitted, and a failure to recognize the malady is responsible for its reputed rarity. Comparing the frequency of admissions for gout at the Johns Hopkins, and at St. Bartholomew's Hospital for a period of 14 years, it is found that in London, cases are a little less than one-third more frequent. In Baltimore there were 41 cases of gout in 15,697 medical cases, or .26% whilst at St. Bartholomew's there were 124 cases out of 33,356, and medical admissions, or .37%.

All the Baltimore cases were in males, and only one negro. This race enjoy a relative immunity against the disease. The majority of the cases appear to have earned rather than inherited their disease, and alcohol and lead seemed to be the most potent ætiological factors.

Most cases had reached the chronic stage before coming under observation, and a majority of the cases presented evidence of renal disease. The difficulty of distinguishing the disease from rheumatism was illustrated by four cases, in which it was only on later admissions to hospital and after the development of tophi, that the true nature of the malady was recognized.

Dr. Futcher's remarks about the relative frequency of gout might doubtless be applied to Canada. Admissions for gout are by no means rare in Montreal.

Dr. Toogood in an article on "Gout Amongst the Poor," lays stress on the abuse of alcohol, especially beer. Laundresses form the bulk of female sufferers, due doubtless to the custom of quenching a consuming thirst with frequent half-pints.

The Pathology of Gout is dealt with by West, Haig and Hall.

Dr. West discusses the relation of gout to granular kidney. He concludes that although both lead and gout may produce chronic changes in the kidney, neither causes granular kidney. The presence of granular kidney greatly increases the liability of the patient to gout on the one hand, and lead-poisoning on the other, and in each affection greatly increases the gravity and risk.

During an attack of acute gout, the urine may temporarily contain albumen, usually only in traces. Exceptionally it may occur in large quantities, disappearing completely after a few days. It is often assumed that repeated irritation of the kidney in gout eventually results in granular kidney. That the association between the two diseases is a close one, is universally conceded, but judging from the clinical histories of cases of gout and of granular kidney it is not so clear that gout is the primary disease.

Gout is a disease of the later half of life, lasts many years, and is rarely fatal of itself. Granular kidney is a disease of earlier life, and terminates at a much earlier average age, and the general clinical history of gout is not that of granular kidney.

Both lead poisoning and gout probably arise more readily in the presence of granular kidney, elimination of lead or of uric acid being interfered with.

Dr. Haig's doctrine of gout is extremely simple and dogmatic. He regards both gout and rheumatism as due to uric acid, introduced as a poison in food. Flesh and tea are the chief offending articles, and gout is simply a symptom of poisoning by these articles.

Dr. J. Walker Hall's article on Metabolism in Gout will repay careful perusal, and does not readily lend itself to intelligent presentation in a short abstract.

The treatment of the disease is very fully considered by Sir Dyce Duckworth, A. P. Luff and Gilbert A. Bannatyne. F. G. F.

Society Proceedings.

OTTAWA MEDICO-CHIRURGICAL SOCIETY.

The first annual dinner of the Ottawa Medico-Chirurgical Society was held on Thursday, November 19th, at the Russell House. Dr. H. B. Small, the President, occupied the chair, with Drs. Dewar and Webster in the vice-chairs.

Dr. S. J. Tunstall, of Vancouver, President-elect of the Canadian Medical Association; Dr. H. S. Birkett, of Montreal, President of the Montreal Medico-Chirurgical Society, and Mr. Geo. F. Henderson, of Ottawa, were the guests of the Society.

There were also present: Sir James Grant, Sheriff Sweetland, Drs. Argue, Bradley, Brown, Chabot, Cooke, Courtenay, Craig, Dewar, Foster, Foxton, Gibson, J. A. Grant, jr., Kirby, M. O. Klotz, J. E. Klotz, Lambert, Law, McDougall, McElroy, Mayburry, Minnes, O'Brien, Parent, R. W. Powell, Preston (Carleton Place), F. W. Powell, Rogers, Robinson, Royce, Seager, A. T. Shillington, Smith, Spence, Valade, Webster, Whitton, Campbell, Ells, Fortin, Higgins, Aubry (Hull), and Archambault (Hull).

Letters of regret were read from Sir F. W. Borden, and Drs. T. G. Roddick, G. E. Armstrong and H. A. Lafleur, of Montreal. All expressed best wishes for the future welfare of the society. The toast list opened with the usual toasts to the King and Governor-General. The toast to the Parliament of Canada was proposed by Dr. R. M. Coulter, Deputy Postmaster-General, and responded to by Sir James Grant.

The toast of the Militia Medical Services was proposed by the President and responded to by Drs. Shillington and Whitton.

The Ontario College of Physicians and Surgeons, proposed by Dr. Dewar, was responded to by Dr. M. O. Klotz. He gave an account of the work of the past year in the council, and outlined changes in the matriculation which had been made this year towards increase of requirements.

Our Guests were proposed by the President. Dr. S. J. Tunstall in reply, expressed his gratification in his good fortune at being present. He complimented the society on its good showing at its first dinner. He appreciated the opportunity of being present and extended to the members a most cordial invitation to visit Vancouver in September, 1904, when the Canadian Medical Association meets on the Pacific slopes for the first time. He looked for a goodly representation from Ottawa.

Dr. Birkett, of Montreal, spoke in appreciation of the good fellowship shown by the Ottawa Society in asking for representation from the sister society of Montreal. He hoped this might only be the first of many similar occasions on which the two societies might meet on common ground. He invited the members of the Ottawa society to attend any meetings of the Montreal society and expressed on his own part a desire to reciprocate.

Mr. Henderson and Dr. Preston (Carleton Place), also spoke to this toast.

The Profession was proposed by Sheriff Sweetland and responded to by Drs. R. W. Powell, Cooke and Valade.

The Hospitals were proposed by Dr. Webster and responded to on behalf of their respective institutions by Dr. J. L. Chabot, Dr. R. S. Minnes, Dr. J. A. Grant, jr., and Dr. Law.

Third Regular Meeting, November 5th, 1903.

Those present were Drs. Grant, Small, Horsey, Cooke, Minnes, Troy, Gibson, Bradley, Argue, Foster, Kirby, Law, Kennedy, Dewar, Spence, Leggett, Lambert, Mayburry, ,Parent, Whitton, Ballantyne, J. E. Klotz, Royce, McArthur, Rogers, Echlin, Foxton, Basken, Graham, Robinson and Brown; visitors: Drs. Higgins and Campbell. The Honorary President, Sir James Grant, introducing the speaker for the evening, congratulated the society upon the enthusiasm of its members and upon their choice of president. He was gratified to know that the days of more than one society in Ottawa, were numbered. He called upon Dr. Small for his inaugural address.

The subject chosen was "Medical Memoirs of Bytown." Dr. Small carried his hearers back to the early days in Bytown—from its first

settlement to 1854, when the oldest living practitioner, Sir James Grant first opened his office. He outlined in a brief but comprehensive and interesting manner, the points of historical interest from a medical standpoint in the development of Bytown. He spoke of the ravages of the epidemics of malaria, cholera and emigrant fever, of the beginnings of the Catholic General Hospital and of the County of Carleton General Protestant Hospital.

He gave brief biographical and character sketches of the physicians of that period, including Drs. Christie, Stewart, Hill, Van Courtland, MacQueen, Tuthill, Stratford, Gellie, Morson, Rankin and Sewell. He also exhibited photographs of several of these gentlemen and of the first hospital buildings in Bytown. A hearty vote of thanks was voted to Dr. Small, and it was decided to print the paper together with photogravures.

SOCIETE MEDICALE DE MONTREAL.

October 27th, 1903.

Dr. O. F. Mercier, Vice-President, in the Chair.

Dr. St. Denis presented a large polypus of the nose, and gave the history of the case.

Dr. A. Mercier showed a specimen of the fourth lumbar vertebra completely fractured. The patient presented no symptom of fracture of the spine.

Dr. St. Jacques reported a case of fractured spine through flexion, followed by an enormous hæmatoma. Operation: opened hæmatoma and removed a small piece of loose bone. Patient recovered without manifesting any unfavourable symptoms. He would not have performed operation, were it not for the large hæmatoma; but would have preferred extension and a plaster jacket.

Dr. O. F. Mercier remarked that both operation and immobilisation were indicated as both modes of treatment gave good results.

Dr. Alph. Mercier reported a case with specimen of traumatic intestinal perforation, discovered at the autopsy. The patient was violently struck by a board in the abdomen, whilst working in a planing mill, and was taken to the hospital in the ambulance. No trace of external violence was noticed about the abdomen; facies good; temperature normal; pulse rapid; muscular tension pronounced: Patient was placed under observation, with hypodermic injections of morphia and ice bag. The same evening there was slight tympanites with still pronounced muscular tension. The following morning the patient had a motion of the bowels and passed gas without enema or purgatives.

Tympanites increased. At 5.30 p.m. he was very weak, and at 10 p.m. he died.

Dr. Francois de Martigny congratulated Dr. Mercier for his communication and demonstration of the pathological specimen. The clinical report he thought very interesting and recalled those found in pre-aseptic days. Dr. de Martigny was of opinion that an exploratory laparotomy should have been performed and that the advantage of seeing the present specimen would not have been afforded the meeting. The patient left to himself, struggled for twenty hours against the intestinal perforation, even then he passed gas. It was probable therefore that he would have successfully undergone an operation. "I am sorry to differ from Dr. Mercier, as to treatment in such cases of abdominal contusion sustained by a blunt body. I firmly believe that a man having been violently struck in the abdomen by a hard body, should be operated upon as soon as possible after the accident; an exploratory incision entailing little or no danger should be made, and if a tear of the bowel is found, it should be closed, thus saving the life of the patient. As a general rule in such cases, no trace of external violence is found." Dr. de Martigny then recalled the case of a labourer who was struck in the abdomen by the shaft of a cart. The patient though suffering considerably, was strong enough to walk to the hospital, where upon examination no external abdominal ecchymosis was found, only slight muscular tension. An incision was made and a large tear of the bowel was discovered and sutured: the patient recovered.

Dr. St. Jacques recalled the case of a carter, who had been run over by his waggon in the region of the iliac fossæ. He was called in 6 hours after, to examine the patient; the pulse was good also the facies, and no temperature; no fracture of the pelvis was found, but slight muscular tension in the right iliac region was observed. No blood in the urine. Treatment: ice and morphia. Patient recovered.

Dr. Dubé asked how such perforations were produced and Dr. Mercier replied: generally through compression of a portion of the intestines against the spinal column.

Dr. Dugas said such lesions were rare at the morgue; the patients generally died in the hospitals several hours after the accident. He related the case of a child who died 26 hours after receiving a kick in the abdomen; at the autopsy a large tear was found.

Dr. Mercier did not find the treatment of abdominal contusions as simple as Dr. de Martigny alleged. They were difficult cases to handle and the diagnosis was not easily made. He did not oppose the operation, but was of opinion that they should intervene only when they were sure of a perforation. The question of treatment was also subject

to discussion and he believed that those like Michaud and his imitators had no better results than those who refrained from operation. Statistics showed that out of 289 cases, 178 recovered without operation. He also recalled the case of a patient who died after receiving a blow of a whip.

Dr. DE MARTIGNY said in reply that Dr. Mercier based his opinion on statistics which gave about 50% of deaths, and did not think that Dr. Mercier could quote statistics with so high a percentage of deaths from operation. As to the patient who died through a blow of a whip, he certainly would not have been any worse had he been operated on. He confessed with Dr. Mercier that such cases were difficult to handle, but were the profession without difficulties, continual study would not be required. The case reported by Dr. St. Jacques was not at all alike the others; the bones of the pelvis protected the internal organs from injury, and he believed that had his confrère been called to attend a man who had received a similar injury in the umbilical region, he would not have waited an instant, but would have operated.

Dr. DECARY recalled a case operated upon by Michaud for intestinal perforation following external violence. Patient died and M. Brouardel performed the autopsy; three tears were found of which two only had been sutured.

Dr. DE MARTIGNY finally cited a case of death, notwithstanding the operation. Brouardel in making the autopsy of a patient operated on by Michaud found a perforation of the bowel which had not been sutured; but it was likely, that had it been, the patient would have recovered. It was well understood that all perforations must be closed. M. Gosset sutured 19 perforations on the same patient and the operation was successful.

Dr. VALLIN presented two children, brothers, suffering from classical *trychophytosis*. These children played with a dog that had the same disease, and thus were infected. This tended to show that Dr. Sabourand's theory (animal infection) was correct.

Dr. ALPH. MERCIER presented a patient suffering from a syphiloma of the nose.

November 10th, 1903.

Dr. C. N. VALIN, Fellow-Professor of Hygiene, Laval University, delivered a lecture on purification of potable water by large filters.

After defining what was understood by filtration in general, both central and domestic, the lecturer spoke of the four large systems of filtration, the European filter, the American filter, Anderson's filter and the electrical filter. Each of those four methods of filtration were practicable and had been sanctioned by experience. Then followed

statistics showing the decrease in the percentage of death rate and contagious diseases in the cities where filtration of drinking water has been established.

Dr. Valin believed that the city of Montreal would profit by the establishment of a system of filteration and would likely be able to show a decrease, at least similar to that of St. Hyacinthe, where filtration was practiced, resulting in a decrease of 80% in the percentage of contagious diseases.

Dr. Valin favoured the electrical filtration or the process of ozonation.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

23rd October, 1903.

H. S. Birkett, M.D., President, in the Chair.

Dr. C. F. Martin : Some Pathological Specimens of Kidneys with Remarks : The specimens shown to-night represent a form of nephritis which is very interesting—a case in which both kidneys are extremely small; they belonged to a boy of 18 years, who came to hospital about six weeks ago with ordinary signs of what I thought was chronic parenchymatous and interstitial nephritis. He was a very pale, pasty boy with slight general œdema, a very large quantity of albumen in urine, and in addition, one found on examination that he had quite marked hypertrophy of the heart and a very high tension pulse. He had been ill only since last May, that is about six months' illness altogether previous to his death, though on further enquiry into the history, one finds that he had really been slightly ailing for a number of years and the condition which he had seems to have arisen from a severe attack of measles when seven years of age; at all events that is what one might surmise from the history of the case and the condition of the kidneys on examination. One point which suggested this was that he was thought when young to have had diabetes; evidently the polyuria suggested that diagnosis. The examination of the urine was quite interesting; moderate in amount, 40 oz., with the specific gravity quite low, an average of 1008; the amount of albumen very large, 4 or 5 grms. to the litre, and at one estimation about 1½% albumen was present. In only one specimen was there anything that looked like casts, the other examinations showed a great deal of mucus and a slight amount of pus.

The condition in a few weeks went from bad to worse and he developed definite signs of uræmia, had convulsions and finally died after

a week, with almost complete suppression of urine and so on diminishing until death took place. The diagnosis made was chronic mixed nephritis, parenchymatous and interstitial nephritis. In addition to this cystitis was suspected from the large amount of mucus and pus present and the symptom of occasional frequency and difficulty in micturition. The autopsy was only partial, but the kidneys showed something quite surprising. In addition to this condition of the kidneys the calices were very much dilated as also the pelves; the ureters were quite normal, bladder large, wall hypertrophied and showed great thickening and interstitial change; in other words a chronic cystitis.

The interesting points in connection with the case are, first of all the insidious onset. In this case the condition of the kidneys indicates many years of disease, and yet only a few months of marked evidence of a serious condition was present. The second point is the relation of the urine to the diagnosis of the renal condition, which was very hard to make out—a large amount of albumen but no casts, yet there was very advanced nephritis. A good example of how difficult this is is in a similar case I saw some time ago where the patient passed blood casts for many months, and the condition of the kidneys showed only chronic interstitial nephritis.

Dr. G. E. Armstrong : [1] A living case of Undescended Testicle: This case of a boy 15 years old is shown 10 months after operation. Before operation the testicle could just be brought to the external ring. At the time of operation the cord was separated and drawn well down and a space made in the scrotum to receive the testicle. At the present time the testicle lies comfortably in the scrotum well down, freely movable and seems to be in a fair state of nutrition.

[II.] Living case of chronic Intestinal Obstruction, with the following history:

A very small woman, admitted to hospital in August, 1903, with distended abdomen, pain, swelling in left side, vomiting, constipation and loss of appetite; there was also much loss of flesh. Seven months before admission, patient fell downstairs and sustained a severe blow on the left side of the abdomen. That night there was constant pain, nausea and vomiting, constant pain since of a dull aching character running up and girdling the abdomen, worse on eating; the sight of food causes severe retching and vomiting. Has a constant desire to go to stool, but at the same time there was no complete constipation. Chief diet was raw eggs and brandy. The patient kept at her work. On entering the hospital feels easier lying on back with thighs flexed. There was considerable distension of the abdomen, very marked

especially in the lower half, equal on both sides. On palpation there was a moderate degree of rigidity, also slight dilatation; no bleeding during the passage of the stomach tube. On admission, patient was very sick and feeble. I tried to reduce the abdomen by enemata and purgatives, which were continued for 13 days after admission, these bringing away a considerable quantity of fluid, and on one or two occasions purgatives acted well by the mouth; but at no time was there any reduction so that the abdomen could be palpated. The condition was now getting worse, the patient failing in strength and something needed to be done. Another symptom was visible peristalsis and an examination per rectum was negative. Notwithstanding these results from the enemata and from the medicine, I thought that there was a condition of incomplete chronic obstruction, basing my opinion upon the presence of pain, the continuance of the distension, the presence of vomiting and the visible peristalsis over the small intestinal area. Just where the partial obstruction was I could not say, it was evidently complete and clearly chronic and considering her age, her more or less anæmic condition, one might say it was malignant in character.

Having consulted with several of my colleagues, it was decided that an exploratory incision be advised, and being uncertain as to the exact location I made an incision in the median line and found on opening the abdomen that the ileum was full, the cæcum was full, and on going to the sigmoid I immediately came upon this hard tumour. [Tumour was shown]. It was clearly malignant, and two or three large discrete glands were seen in the mesentery. One of these, the hardest of the lot, I slipped out and had reported on, whilst I was in the room, and it was found to be only lymph tissue. Now was the time in these cases when one might hope to obtain a good result. The condition was extremely bad; it was bad on admission to hospital and had not improved any during the 13 days she was under observation and the ether did not make it very much better, so that I felt that to excise this growth would probably court disaster. I therefore did a short circuit operation, and watched her pretty closely after this and it was clear to all of us who were interested in the case that she just got through. A very profuse watery diarrhœa supervened which was with great difficulty controlled, and it left her extremely prostrated. However, after removal of the growth three weeks later, she made a very nice recovery and in a week the abdomen was soft and flat and she was taking her food well. As she was prostrated to a very low degree we resorted to what might be termed forced feeding. I should have liked to simply remove the

growth, but I felt that I was not far enough away from it, and it seemed that here was an early case of malignant disease and that to do the operation which would give promise of anything like a fair success I should remove it a little more widely than I otherwise would have done. I therefore removed the lateral anastomosis, closed both ends and did another lateral anastomosis side by side.

I am sure we may often make a mistake in trying to do too much in these cases and I think we would have better success by doing as little as possible at first and after recovery from the toxæmia, shock, etc., to complete the operation. If I could have got a little farther away from the tumour and done a lateral anastomosis it would have been better.

A colleague to whom I was speaking had had a somewhat similar case in the hepatic flexure, but he was able to palpate and so cut right down on the tumour at once. He too removed the growth and brought both ends out of the wound and allowed them to remain there until she had perfectly recovered from the operation when he reunited them. Unfortunately a thrombosis and phlebitis developed with gangrene, necessitating amputation from the thigh. I think the method I adopted here was the quickest and accompanied by the least shock and the least loss of blood and called for a less strain on the recuperative powers of the patient afterwards.

Dr. F. J. Shepherd commended Dr. Armstrong's procedure and mentioned a quicker way of using Paul's tubes, tying them in for a few days and then after the patient recovers sufficiently to remove the growth. He thought the case an interesting one, especially from the fact of the glands not being enlarged, and stated that one should never be sure as the microscope may only show a small part of a gland while one cell may infiltrate and proceed to malignancy.

Dr. H. S. Birkett, the president, showed a living case of Lupus of the Pharynx and Naso-Pharynx, which was presented to the Society last June whilst undergoing treatment by X-rays. The patient now showed complete arrest of the disease.

The President also showed a Salivary Calculus, taken from a man 52 years old, who came complaining of recurrent attacks of pain in the lower jaw on the left side and in the region of the submaxillary gland. Each attack of pain was accompanied by a palpable swelling in the floor of the mouth on the left side, and the pain was always relieved by an escape of milky coloured fluid from a point near the tip of the tongue on the same side of the mouth. The last attack was of two days duration and upon examination, Wharton's duct on the left side was distinctly swollen and very tender. From the mouth of the

duct a milky fluid was seen escaping and upon passing a fine probe along the course of the duct it was arrested at a distance of one inch by something which conveyed a grating sound. Palpation at this point revealed a distinct hard mass. Satisfied that it was a calculus, an incision was made directly over it, which allowed the specimen shown to escape. The subsequent results were satisfactory.

Drs. F. M. Fry and Maude E. Abbott : Dr. Abbott exhibited a specimen of cleft palate in a child three days old, and Dr. Fry reported that the child was admitted from the country to the Foundling Hospital, and inasmuch as from the first it refused to touch any nourishment, an examination was made and the superintendent diagnosed the condition. The child was admitted 1 day old, weighed 3 lbs. 13 oz. Apart from these defects this case had thrush; owing to the anatomical condition of the parts there was also an ideal nidus for the thrush. In the second place the large cleft prevented the child from sucking. It only remained to enquire into the etiology, and as far as the history of the parents of the child went, the father was a criminal of the basest type and an aunt of the child had a cleft palate as well, and on enquiry, one found there was probably an extreme type of consanguinity of the parents, so evidently these factors all contribute to the condition. Dr. Abbott also reported that there was also a very large patent foramen ovale, but that there was no other deformity.

The specimen which was demonstrated by Dr. Abbott had been presented to the McGill Medical Museum. A dissection of the remains of the fœtal circulation in the same infant was shown.

Dr. W. F. Hamilton exhibited a living case of distended abdomen for diagnosis. Dr. Hamilton mentioned that all abdominal cases were more or less obscure and especially those in children with chronic ascites, and he had presented this, thinking possibly to get some clue to the diagnosis. The examination of the testicle or left part of the scrotum was of interest, inasmuch as there seemed to be some development of a hardened nodule apart from that which was noticed some six weeks ago when the patient first came under observation. At first the organs in the scrotum were carefully looked over with the hope that some suggestions of the condition would be found there—tuberculosis, etc., but that had not been confirmed. Dr. Hamilton was of opinion that it was a case of cirrhosis of the liver with enlargement of that organ.

Dr. M. Mackay : "Gas Cysts in Brain and their Causation," with specimen, reported in the November number of this Journal.

Dr. Adami : Paper on "Appetite Juice," printed in November number of this Journal.

Dr. Evans in congratulating Dr. Adami on his paper said that he had read the book referred to, and would recommend it to all present. Dr. Evans was of opinion that the results of wine cocktails at dinner, as mentioned by the author [Pawlow], and Beaumont's passing of a gum elastic tube into the stomach and setting up a flow of gastric juice, were one and the same; in certain forms of indigestion there was a craving for large amounts of food, and it seems to him that it was probably due to an irritation of the gastric mucosa and as such was interpreted by the higher centres. If Beaumont's man had been asked how he felt during the experiment he would probably have replied that he was hungry.

Dr. Wesley Mills : In drawing some indirect conclusions from the reading of the paper, Dr. Mills noted the fact of the author's long experimentation before any publication of the results, an example not much followed at the present day. He was, however, of the opinion that the difference between Pawlow's work and Beaumont's, was more apparent than real; that Beaumont's experiment was on one individual, and that even among the lower animals we recognize individuality. Another observation was, that the most striking results of Pawlow's observations were simply a confirmation of ordinary experience. With regard to digestion, physiologists seemed to think that one must expect no more of the alimentary tract than could be demonstrated in vitro in the laboratory. But it was seen that even low down in the invertebrates, where in their crude cavity even sea water entered, digestion must be very imperfect, and that the principal part of the work must be done by the cells which line the cavity after material had been stored in it. And it looked as if recent researches were bringing them to the idea that the finer work of digestion was in this intercellular matter, for instance the digestion of fat; and how he asked were we to bridge over the gap between what was ordinarily called digestion and the plasma of the blood; there must be some very important process, between the peptone and the proteids of the plasma of the blood. There they had something taking place within structures not outside them. He therefore concluded, even in the presence of those extended researches, that they were still just on the threshhold of the subject. The various forces which brought about secretion of the juice were only one part. Indigestion was evidently a disease of the times, for it was a very prevalent condition, and it might be looked upon in the light of an influence of the nervous system upon the whole process.

They were leaving behind the old crude view that the process was chemical. Of course everything biological came to be chemistry in the end, but they used to be satisfied with the view of simply bringing the food into a condition which was a long way from the final result—what they call digestion. Then they had vague notions about absorption and now they come to the finer view of the whole process being controlled through the nervous system, and intercellular digestion was not always to be distinguished from what was called absorption.

Dr. Shepherd mentioned that he visited Pawlow's institution in Russia, and saw the various animals under experimentation and was struck with the extent of the place and the equipment and facilities for research.

Third Meeting, November 6th, 1903.

H. S. Birkett, M.D., President, in the Chair.

The following persons were elected to resident membership: Drs. E. Hamilton White, A. R. Pennoyer, A. H. Gordon, T. A. Starkey, Charles K. P. Henry; and to temporary membership the Resident Staff of the Montreal General Hospital, namely, Drs. R. C. Paterson, E. M. McLaughlin, F. S. Patch, N. D. Paris, W. E. McKee, C. Anderson, H. E. Nelson, L. C. Bishop, H. Cowperthwait; and also Dr. Franckum of the Women's Hospital.

Dr. Lapthorn Smith:—The woman from whom the tumour was removed, suffered from a severe reflex nervous disturbance, such as might come from a lacerated cervix or from any other irritation of the parts in the region of the sympathetic. On examination it was found she had a lacerated cervix and on repairing this, I told her she had probably some tumour of the kidney, and advised operation. While in hospital I opened the abdomen in the middle line between the ensiform cartilage and the umbilicus and came upon a tumour the size of a cocoanut. This I found impossible to enucleate on account of the covering of thick fibrous capsule. I simply tied off this in segments all the way round and then enucleated the tumour. With it came the kidney, which I had to remove, as otherwise, in tying the adhesions the ureter and vein had to be sacrificed. At the time of operation the tumour was densely filled with clear limpid fluid. The ureter runs through the wall of the tumour and not through the tumour itself. The kidney has no capsule on the abdominal side, that having been left in; the other half of the kidney capsule was on the tumour. Marked improvement in general health followed the operation; the appetite and digestion improved rapidly. Here I would urge the advantage of operating through the abdomen for tumours of the

kidney, as it is safer and you have a better view of the condition. This tumour was right on the vena cava and if operated on from behind there was every possibility of injuring it.

Dr. E. W. Archibald:—A living case of giant-celled sarcoma of the lower jaw; resection with prosthetic use of silver wire.

The patient, E. F., aet. 12, was admitted to the hospital on May 7th, 1903, with this condition extending from the first bicuspid on the right to the first molar on the left. The present growth, a recurrence, was noted first, three weeks before admission; growth rapid. First operation, a scraping one, done two years ago. On May 15th, resection was done leaving one molar on either side. Strong silver wire was inserted in double strand, bent to contour of chin, free ends clamped into bone of the right side, on the left side forming a loop. There was persistent sinus for several weeks, cured by small secondary operation.

Dr. Garrow:—A point of importance to me, is the fact that silver wire can heal in a suppurating cavity. It is well-known that such sutures are used for closing deep fascial layers and that they are very often followed by suppuration, months and even years after the wound has healed, the silver wire becoming imbedded in fibrous tissue. I myself have had the annoyance of having to remove my sutures after a joint has united. I can remember three instances of this, and I have thought that very possibly their successful retention in the jaw may be due to the action on the wire of the mucus in the mouth.

Dr. Elder:—From an æsthetic point of view the case is an excellent one. Many of us have seen such operations, but the result here is a long way better, as far as looks and function go, and is a great advance on what has been done before. With regard to the use of silver wire, I have used it frequently in excisions of the knee and never had any trouble with it, and also have used it in ununited fractures, and I think the whole trouble lies, not in the silver wire itself, but in its insertion, a twisted end causing irritation. In a case such as Dr. Archibald's, one need not look for any such irritation.

Dr. Girdwood:—It is well to insist, in the use of silver wire, that it is pure and does not contain any copper; for if it contain copper, you will have a galvanic action, and therefore an irritation.

Dr. J. M. Elder:—An operation for radical cure of umbilical hernia. Page. 875.

Dr. Lapthorn Smith:—So far I have not had occasion to use this method. In small umbilical herniæ I employ silk-worm gut sutures underneath the fascia behind the edge of the ring, tighten like a purse string and leave the stitches permanently. In the case of very large ventral herniæ where the intestine was adherent to the back of the sac

the whole way, I have left the whole hernial sac on in front of the bowel, and turned it into the abdomen, as it would have been a serious matter to take all this off the bowel. In all cases I look for the rectus muscle, insert a pair of probe pointed scissors, and then run around excising the rectus muscles without hæmorrhage. We see the rectus quite plainly with the external oblique fascia in front and the transverse fascia behind. I now close this with about 30 buried silk sutures, pulling the muscle well out, and when now brought together one has the two muscles well approximated. By this means you get quite a thick edge, the external fascia, the rectus muscle and the internal fascia. There are no chances of the hernia relapsing, though there may be some suppuration. Long ago it was the custom to take out the stiches in five days, but now I leave them in 21 days for better union. As I understood Dr. Elder's description of the operation, it is an overlapping of the layers and we get a valvular closure, it is a fairly easy, reasonable operation and has strong claims in its favour.

Dr. Keenan:—It seems to me this is not a new operation; I have not read Mayo's paper, but I myself did the operation in 1900.

Dr. Garrow:—With reference to this method, I think its description may date back ten years ago, and it seems to me was first described by Champannière in Denis's System of Surgery. Denis recommends it as one of the methods of closing inguinal hernia and describes it accurately. I also think that Dr. Clarence Webster brought up this method some five or six years ago. While the method is comparatively simple and I have done the operation by this method myself, so far as ventral hernia is concerned, I have found it exceedingly difficult. In umbilicial hernia the condition is different where you have simply a separation of the muscles. In old umbilical hernia it is not only unwise but very unsafe to attempt the reduction of the contents *en masse*. Here there are bands of fibrous tissue and there may not only be large intestine but omentum as well.

With regard to the purse-string suture in small umbilical herniæ, I have tried this and failed miserably, as it was impossible to approximate the edges of the opening. This may be due to the fact that most of these cases I operated on were in very stout women with thick walls sand greatly thickened omentum. The difficulty was not only in approximating the tissues of the wound, but the tissues seemed to have undergone alteration and tore easily, I had to overlap and make a rather tight scar. The last two strangulated hernia I operated on, I followed a different procedure. After opening up the fibrous tissue constituting the wall of the opening and looking for the recti muscle, I found it so friable that it would not hold a suture. I, therefore, overlapped it, left the muscular tissue where it was, overlapped the

anterior layer—I simply overlapped the posterior layers and fascia in one direction, and the anterior layers and fascia in the other. So far as the operation as described by Dr. Elder, is practised in the lower zone, I think it is by long odds the best operation for the purpose, but for umbilicial hernia I found it not possible to carry out.

Dr. Monod:—In this connection I have been taught to do two things, *viz.*, to increase largely the fibroid orifice through the linea alba and to open the sheath of the two muscles and bring them together, taking as much muscle as possible.

Dr. Archibald:—The objection to reducing the hernia *en masse* is a very serious one; it seems to me that reducing a hernial sac with the contents inside would give opportunity for strangulation by loops of intestine. For that reason it is unwise not to open the sac.

Dr. Elder:—I think this purse string suture round small umbilical harniæ would only likely be beneficial in the infant variety; I do not think in the adult it could be depended upon. The method of curing ventral hernia by opening the edge of the sheath of the rectus is my idea of the Champannière method, which is a very old method indeed, and is a different idea from dissecting and overlapping of the two recti. With regard to the question of returning the sac, what I meant to say was in large ventral hernia due to separation of the two recti muscles, there is no particular objection to opening up this sac. But in umbilical hernia with a definite sac with a narrow neck, it would be well to see what the condition of the inside is.

Dr. Garrow:—A case of congenital dislocation of the hip, reduction by manipulation. Illustrated by living case. Page 881.

Dr. Monod:—During two years in the Children's Hospital in Paris, I saw a good deal of this work and have myself done a little. I saw the first case operated on there by the Lorenz method. There is in all these cases a very slight shortening of the limb, and it seems to me that it is due to the fact that the natural cavity is not deep enough to keep the head. With regard to the other operation I should like to have seen the case, and to know why the bloody method was followed. Hoffa, who has done a great many of these operations, now employs the Lorenz method almost entirely as having more advantages.

Dr. Elder:—The lessons to be drawn from the case are more especially noted in the skiagraphs. From these may be shown the conditions which would favour the one operation, while others would show conditions favouring the other. In the first case the skiagraph shows a fairly good acetabulum, and with this one might easily hope to get the head into the cavity with a good result; but where there is no acetabulum, little is to be hoped for by the Lorenz method, but much more by the open method, and the skiagraph will, it seems to me,

determine which is the best to pursue. A great deal can be learned from a good previous skiagraph of the case. With regard to the shortening, I do not agree that the reason for the shortening is that you do not get the head into the proper acetabulum. I think that it is an anatomical difference; the femur for instance not developing normally.

Dr. Garrow:—Notes on a case of congenital absence of the Fibula with deformity of the femur in a child of three weeks. Page 880.

Dr. Chipman:— With regard to this case one might consider the etiology from an embryological standpoint, and I am rather surprised by the way in which the etiology has been given as to the causation of this deformity, that is, due to the pressure of the amnion upon the embryo as it lies in the amniotic sac. Deformities caused by the pressure of amnion are invariably extrinsic, that is they are invariably associated with the skin surface of the fœtus and give rise to forms of skin adhesions. Here the absence of the fibula and some deformity of the ankle joint show we are dealing not with the skin surface of the embryo but with the mesodermic core, and it is rather difficult to see how the mere pressure of a membrane such as the amnion on the skin surface, will account for the maldevelopment in the mesodermic core. This is rather due to an intrinsic cause than to an extrinsic one, or pressure.

Dr. Garrow:—In reply to Dr. Monod's remarks about the shortening, and the possible explanation of its being due to the head of the bone not having its proper acetabulum; that I cannot be sure of, except that the skiagraph shows a very well placed head, but I have recently seen cases where the head of the bone actually took a position in front of the acetabulum. I agree with Dr. Elder, and from my experience in the open method, that the shape of the head of the bone itself is a factor. With respect to my reason for not doing the bloodless or Lorenz method in both cases, I would say that the skiagraph showed a very distinct hour-glass narrowing, the lower part of the capsule was stretched tightly across and the acetabulum itself was filled up with cartilaginous substance, and the head was only put in proper position after I had gouged out enough of this material to form a cup-shaped depression.

Fourth Meeting, November 20th, 1903.

H. S. Birkett, M.D., President, in the Chair.

Dr. Wesley Mills : Paper : The Neurone Doctrine considered Anatomically, physiologically and Pathologically, together with the objections to be urged against the Concept in its original form—illustrated by lantern slides.

CANADIAN MEDICAL PROTECTIVE ASSOCIATION.

AN URGENT APPEAL FOR MEMBERSHIP.

DEAR DOCTOR:—Our annual statement to the meeting held at London, Ont., during the recent session of the Canada Medical Association showed that while the membership increased slightly last year, yet we are far short of our expectations of success as a vigorous society, and we have determined once more to make an effort to arouse our brethren to a sense of the importance of our undertaking.

In every instance that we have undertaken to defend one of our members in the Courts we have succeeded, but as it has been pointed out again and again, the legal expenses are heavy and though we have won, the costs have had to be met inasmuch as the Plaintiffs were Sheriff proof and worth nothing. Since our organization we have paid out in this way $1,026. Our Exchequer is now practically empty as we owe our bank balance to our Solicitors. Our recent successful suit in defending Dr. Watts at the Cornwall Assizes has brought us in a further bill of costs of 250 dollars which must be met in all fairness to Dr. Watts, and while we are appealing for assistance to the profession at large we are notified of another writ at Gananoque where one of our members is sued for a case of death from Tetanus following a vaccination. If our good work of assisting a brother attacked for malpractice is to go on we must look to the general profession to join us and by their annual fee put the Executive in a position to defend. This appeal is urgent and while Jan. 1st is the date upon which we expect men to join, we are compelled to ask for the 1904 fees now. Everywhere an occasion offers we are encouraged by promises of support to go on, and we realize that it is thoughtlessness only that keeps our list so small.

We confidently look for a greatly increased list of members this year, otherwise we will be obliged to cease our existence as the Executive cannot be expected to make themselves personally liable for legal expenses.